State of play in the EU on GM-free food labelling schemes and assessment of the need for possible harmonisation

Final report

Written by ICF GHK
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Contents

Table of tables

Table of figures

Glossary of terms

Term	Definition
Additives/ enzymes	Food additives are substances added intentionally to foodstuffs to perform certain technological functions, for example to colour, sweeten or preserve. Feed additives are products used in animal nutrition for purposes of improving the quality of feed and the quality of food from animal origin, or to improve the animals' performance and health. Food additives may be added to food enzymes in order to obtain food enzymes preparations.
Adventitious or technically unavoidable presence	Conventional products, i.e. those produced without genetic modification, can be contaminated unintentionally by GMOs during harvesting, storage, transport or processing. The presence of GM material is considered technically unavoidable when farmers can show that they have taken appropriate measures to avoid such presence of GMOs.
Conversion period / minimum non-GM feeding time	Amount of time during which the animal has been fed with GM(O)-free feed.
Credence attribute	An attribute for which quality cannot be assessed even after the product is purchased and consumed.
Threshold level	The level set for allowable analytical detection of GMO traces in food and feed products.
Genetically modified / genetically modified organism	GMOs are organisms with artificially altered genes to change their characteristics in some way. GMO technology is used in agricultural, biological and medical research, pharmaceutical development and experimental medicine.
Identity preserved or identity preservation	Identity preservation is a system of crop or raw material management which preserves the identity of the source or nature of the materials.
Input specifications	Rules concerning the presence of GMOs in agricultural inputs including processing aids and animal feed.
Medicinal products / Veterinary pharmaceuticals	Medicinal products are substances presented for treating or preventing disease in human beings or animals (Directive 65/65/EEC). Veterinary pharmaceuticals are medicinal products intended for animals (Directive 81/851/EEC).
Positive labelling vs. negative labelling	Positive labelling affirms the presence of GMOs in the product. Negative labelling indicates that products do not contain, or are not produced using, GMOs. An example of negative labelling is 'GM-free'.
Processing aids	Any substance or material not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods or its ingredients, to fulfil a certain technological purpose and which may result in the unintentional but unavoidable presence of residues or derivatives in the final product.
Willingness to pay	Amount that a person would be "willing to pay" to obtain a good or a service.

Acronyms

Acronym	Term
AOC	Protected Designation of Origin (Appellation d'Origine Contrôlée)
CA	Competent authority
DNA	Deoxyribonucleic acid
ERA	Environmental Risk Assessment
GM	Genetically modified
GM(O)-free	Genetically modified (organism)-free
GMO	Genetically modified organism
GRAS	Generally recognised as safe
DOP	Protected Designation of Origin (Denominazione di Origine Protetta)
IGP	Protected Geographical Indication (Indication Géographique Protégée)
IP	Identity preserved
MS	Member State
MSG	Monosodium glutamate
N/A	Not available
NGO	Non-governmental organization
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
QM	Quality of Marche (Qualita' delle Marche)
WTP	Willingness to pay

Acronym	Organisation name
AAF	European Starch Industry Association (Association des Amidonniers et Féculiers)
ABG	Austria Bio Guarantee (Austria Bio Garantie)
ADAS	Agricultural Development Advisory Service
AETMD	European Association of canned and frozen sweet corn processors
AGROCERT	The Agricultural Products Certification and Supervision Organisation
AMA	Agri-food market Austria (Agrarmarkt Austria)
Amfep	Association of Manufacturers and Formulators of Enzyme Products
ANIA	National Association of Food Industries (Association Nationale des Industries Alimentaires)
ARGE Gentechnik-frei	Platform for GMO-free Food Products (Arbeitsgemeinschaft Gentechnik-frei)
AUSL	Local health agency (Azienda Unità Sanitaria Locale)
BEUC	European Consumers' Association (Bureau européen des unions de consommateurs)
BMELV	German Ministry of Food, Agriculture and Consumer Protection (Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz)
BMG	Federal Ministry of Health (Bundesministerium für Gesundheit)
BMWFJ	Federal Ministry of Economy, Family and Youth (Bundesministerium für Familie, Wirtschaft und Jugend)
CAA	Consumer Affairs Agency, Japan
CBL	Dutch Food Retail Association (Central Bureau voor Levensmiddelen)
CELCAA	European Liaison Committee for Agricultural and Agri-Food Trade (Comité européen de liaison des commerces agroalimentaires)
CLCV	National Association for the Defence of Consumers and Users (Consommation, Logement, Cadre de Vie)
COCERAL	European cereals, rice, feedstuffs, oilseeds, olive oil, oils and fats and agrosupply trade association (Comité du commerce des céréales, aliments du bétail, oléagineux, huile d'olive, huiles et graisses et agrofournitures de l'Union européenne)
COFRAC	French Accreditation Committee (Comité Français d'Accréditation)
Coldiretti	Federation of Italian Framers (Confederazione nazionale coltivatori diretti)
COOP Italia	Italian consumer cooperative (Cooperativa di Consumatori Italia)
COPA-Cogeca	Comité des organisations professionnelles agricoles de l'Union européenne – Confédération générale des coopératives agricoles de l'Union européenne
CSQA	Agri-food quality certification (Certificazione Qualitá Agroalimentare)
DG AGRI	Directorate General for Agriculture and Rural Development
DG SANCO	Directorate General for Health and Consumers, European Commission
DGCCRF	Directorate General for Competition, Consumer Affairs and Repression of Fraud (Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes)
EC	European Commission
ECCA	European Crop Care Association
ECPA	European Crop Protection Association
ECVC	European Coordination Via Campesina
EFFCA	European Food and Feed Cultures Association
EFTA	European Free Trade Association

Acronym	Organisation name
EMRA	European Modern Restaurant Association
ESA	European Seed Association
EU	European Union
EUROCOMMERCE	European Representation of Retail, Wholesale and International Trade
EUROCOOP	European Community of Consumer Cooperatives
EUROPABIO	European Association of Bioindustries
Euvepro	European Association of Manufacturers, Distributors and users of Vegetable Proteins for Human Consumption
Evira	Finnish Food and Safety Authority (Elintarviketurvallisuusvirasto)
FCEC	Food Chain Evaluation Consortium
FDF	Food and Drink Federation
FEDIOL	European Vegetable Oil and Proteinmeal Industry Association
FEFAC	European Feed Manufacturers' Federation (Fédération européenne des fabricants d'aliments composés pour animaux)
FERCO	European federation of contract catering organisations (Fédération européenne de la restauration collective)
FNLI	Federation of Dutch Food Industries (Federatie Nederlandse Levensmiddelen Industrie)
FNSEA	Federation of farmers' trade unions (Fédération Nationale des Syndicats d'Exploitants Agricoles)
FoE	Friends of the Earth, Europe
FoodDrinkEurope	European Food and Drink Industry
FQC	First Quality Certification
FRESHFEL	European Fresh Produce Association
FSA	Food Standards Agency
HOTREC	European trade association of hotels, restaurants and café industry (Confédération des associations nationales de l'hôtellerie, de la restauration, des cafés et établissements similaires de l'Union européenne et de l'Espace économique européen)
IFOAM EU GROUP	International Federation of Organic Agriculture Movements — European Union Regional Group
IFOP	French Institute of Public Opinion (Institut français d'opinion publique)
IGD	Institute of Certificated Grocers
IKC UM	Institute for inspection and certification, University of Maribor, Slovenia
INAO	National Institute for Origin and Quality (Institut National de l'Origine et de la Qualité)
IRQUA	Regional Institute for Agri-food Quality (Institut Régional de la Qualité Agroalimentaire)
ISO	International Organization for Standards
JAS	Japanese Agricultural Standard
JRC	Joint Research Centre
LIS Consult	Life sciences, Innovation and Society (Life sciences, Innovatie en Samenleving)
LIVSFS	Food Administration Code of Statutes (Livsmedelsverkets författningssamling)
LNV	Ministry of Agriculture, Nature and Food Quality (Ministerie van Landbouw, Natuur en Voedselkwaliteit)
LRF	Federation of Swedish Farmers (Lantbrukarnas Riksförbund)

Acronym	Organisation name
M&S	Marks and Spencer
MAFF	Japanese Ministry of Agriculture, Forestry and Fisheries
Ministerie EL&I	Ministry of Economic Affairs, Agriculture and Innovation (Ministerie van Economische Zaken, Landbouw en Innovatie)
NAS	Nuclei antisofisticazioni e sanità (anti-fraud enforcement authority)
NASAA	National Association for Sustainable Agriculture, Australia
NFU	National Farmers Union
NVWA	Netherlands Food and Consumer Product Safety Authority (Nederlandse Voedsel- en Warenautoriteit)
ODG	Defence and Supervisory Body (Organisme de Défense et de Gestion)
PFP	Primary Food Processors
rBST	Recombinant bovine somatotropin
REWE	Auditing association of western purchasing cooperatives (Revisionsverband der Westkauf-Genossenschaften)
SCFCAH	Standing Committee on the Food Chain and Animal Health
SFS	Swedish Code of Statuses (Svensk författningssamling)
SLOW FOOD	Slow Food Associazione Internazionale
SPD	Social Democratic Party
UECBV	European Livestock and Meat Trading Union (Union européenne du commerce du bétail et de la viande)
UFS	Union Française des Semenciers (Union of Seeds Producers)
UGAL	Union of Groups of Independent Retailers of Europe (Union des groupements de détaillants indépendants de l'Europe)
UNAF	French Beekeepers' Trade Union (Union Nationale de L'Apiculture Francaise)
UNI	Italian National Unification Body (Ente Nazionale Italiano di Unificazione)
UNISTOCK	European association of professional portside storekeepers for agribulk commodities
US FDA	United States Food and Drug Administration
USDA	United States Department of Agriculture
USDA FAS	United States Department of Agriculture - Foreign Agricultural Service
VLOG	German Non-GM food Association (Verband Lebensmittel ohne Gentechnik)
ZLTO	Southern Agricultural and Horticultural Association (Zuidelijke Land-en Tuinbouworganisatie)

Acronym	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
DE	Germany
DK	Denmark
FR	France
EL	Greece
HU	Hungary
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
NL	The Netherlands
SE	Sweden
SK	Slovakia
UK	United Kingdom

Executive summary

This study assesses the existing situation regarding GM(O)-free labelling schemes operating across the EU and in a selection of third countries, and the need for harmonisation at EU level

This report on GM(O)-free food labelling in the European Union (EU) was prepared by a team led by ICF GHK for the Directorate-General for Health and Consumers of the European Commission. The Commission procured this *ad hoc* study to:

- Identify and describe food labelling schemes that contain a 'GM(O)-free' dimension, which are being applied or developed by public or private entities in the EU; and
- Identify and analyse core elements to be considered in the context of an EU harmonised approach to GM(O)-free labelling.

EU law requires that where products contain or consist of authorised GMOs or are produced from GMOs (Regulation (EC) No 1829/2003 and No 1830/2003), they must be clearly labelled as such. These requirements do not apply to foods containing authorised GM material at <0.9%, *provided that this presence is adventitious or technically unavoidable*. This is called 'positive labelling'. Labelling food to highlight that, in addition to what is prescribed by the EU legislation, specific measures have been taken to strictly exclude the presence or the use of GMOs in food or feed products (so-called 'negative labelling') is neither forbidden nor specifically regulated at EU level. General food labelling rules apply (Directive 2000/13/EC).

A previous study identified various issues with the current use and regulation of negative labelling. These include: the potential for disruption to the European single market from the expansion of national schemes that vary in their requirements and presentation, the potential problems of having both positive and negative labels in the same market, demand for changes to the labelling of livestock products produced with GM feed and whether the terms used on some labels were misleading. This report was commissioned to look into these issues and potential solutions in greater depth.

The evidence gathering phase of the study on which this report is based involved a literature review, desk research and consultation with Member State representatives and stakeholders, including 70 interviews and 91 survey responses. The research activities comprised:

- A market scan to identify GM(O)-free schemes across the EU-28 Member States and third countries, including government-led and private initiatives;
- Case studies of existing approaches in seven Member States: Austria, France, Germany, Italy, the Netherlands, Sweden and the United Kingdom;
- Definition of the GM(O)-free labelling landscape: specification and market share of current GM(O)-free labelling schemes;
- Collection of information on policy perspectives on GM(O)-free labelling in Member States and at EU level; and
- Examination of labelling implications, including an assessment of the accuracy, reliability, feasibility, efficiency, related costs and perceptions of the labels and covering the social, economic and environmental implications of harmonised GM(O)-free labelling at EU level.

Information was gathered on schemes operating in all EU Member States and Switzerland. In-depth case studies were conducted for Austria, France, Germany, Italy, the Netherlands, the United Kingdom, and Sweden. These seven countries illustrate the spectrum of approaches to GM(O)-free labelling currently operating in the EU. Additional information was also obtained on schemes operating in Belgium, Finland, Slovenia, and Switzerland through a second round of consultation with stakeholders, but these were not developed as stand-alone case studies. Evidence was also gathered on GM(O)-free schemes in a selection of third countries: Australia, Canada, China, India, Japan, New Zealand, and the United States.

Information gathered on GM(O)-free labelling schemes in the EU and Switzerland covered:

- The scheme type (e.g. public / private, explicit / implicit), history and motivations for the scheme;

- Legislative framework and basis (if applicable);
- Product scope and specifications of the scheme, including threshold levels for adventitious or technically unavoidable presence and rules regarding the use of certain GM inputs and any exceptions;
- Operation, administration and verification procedures; and
- Types of labels used (if applicable).

Many different types of scheme exist, including well-established national and private operator-led schemes that aim to facilitate GM(O)-free labelling, public and private schemes under development and national legislation that restricts or bans such labelling

The term 'GM(O)-free' is used in this report to indicate that the requirements underlying different labelling schemes may involve product requirements ('free from GM materials') or process requirements ('free from the use of GMOs in the production process'). The following 'GM(O)-free' labelling approaches are in use:

- 'GM(O)-free' is the main focus of the label, and the label explicitly highlights the 'GM(O)-free' attribute to the consumer;
- 'GM(O)-free' is one requirement of an explicit product label to the consumer which also signals other product attributes (e.g. organic, Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI), and eco-labels); and
- 'GM(O)-free' is a requirement of private supply chain standards, but is not supported by a specific product label for the consumer.

There are examples of schemes codified in private and public standards, and examples of both explicit and implicit labelling (i.e. where 'GM(O)-free' criteria are embedded in supply chain requirements but no labels appear on product packaging that could indicate that the product is 'GM(O)-free').

Three different approaches to government-led explicit GM(O)-free labelling rules and guidelines have been identified

Three different approaches to government-led GM(O)-free labelling rules have been identified in ten Member States and Switzerland.[1] The remaining 18 Member States have not become directly involved in GM(O)-free schemes.

- Legislation that facilitates GM(O)-free labelling has been identified in two Member States: Germany and France. Austria has developed guidelines to facilitate GM(O)-free labelling as well. Croatia, Greece and Luxembourg are currently developing facilitative legislation, though no rules are yet in place.
- Legislation that allows GM(O)-free labelling under highly restrictive circumstances has been identified in the Netherlands and Switzerland. Finland has developed guidelines to assist the supply chain with GM(O)-free labelling, but under similarly restrictive circumstances to those set out in the legislation adopted by the Netherlands and Switzerland.
- Two countries, Belgium and Sweden, have labelling legislation in place that prohibits GM(O)-free labelling. In both cases, the legislation itself does not refer specifically to GM(O)-free labels, but guidelines for implementing the legislation explain how the general rules apply in the specific case of GM(O)-free labels.

National government policies on, and (in some cases) regulation of, GM(O)-free labels have been motivated by objectives that include:

[1] Switzerland is included here as it is a European Free Trade Association (EFTA) country.

- Ensuring consumer provision of information and consumer choice: this is a primary motivation in the policy position of Austria, Germany, and France.
- Avoiding consumer confusion or misleading information: This is a primary motivation for the UK position that if harmonised EU labelling were to be introduced, it should not provide for allowances or threshold levels for GM ingredients or processes. This is also a primary motivation in the policy position of the Netherlands and Sweden.
- Allowing GM(O)-free labelling on animal products where positive labelling is currently not required under EU law: this is an important motivation in the policy position of Austria and Germany, for example.
- Enabling economic operators to produce 'GM(O)-free' products: this is another important motivation in the policy position of Austria and Germany.

Explicit GM(O)-free labels are also present on a variety of products through private operator-led schemes

Evidence collected in this study shows that GM(O)-free labels are present on a variety of products in Austria, France, Italy, the Netherlands, Slovenia, and the United Kingdom. These schemes are run by producers, manufacturers and retailers.

Labelling schemes where 'GM(O)-free' is one amongst a number of quality attributes operate in many European countries

Quality schemes that include a 'GM(O)-free' requirement alongside one or more other product attribute(s) operate in many European countries. EU Organic rules prohibit products from carrying an organic label if GMOs have been used in their production, unless GMO presence is adventitious and technically unavoidable, and below the 0.9 per cent threshold set out in Regulation (EC) No 1829/2003. In France, the specifications for some Appellation d'Origine Contrôlée (AOC) cheeses include a GM(O)-free requirement for their production. Regional quality schemes in France, Germany, and Italy, eco-labels in Sweden, and the ProTerra label in Switzerland also include this requirement.

Non-GM supply chain requirements, but where no labels appear on product packages, are in place in the EU as well

Non-GM supply chains are particularly prevalent in the United Kingdom. They have also been identified in Germany, Italy, the Netherlands and Sweden.

Main elements of GM(O)-free schemes

1 - Labelling rules

A wide range of explicit GM(O)-free labelling approaches has been taken at Member State level:

- France and the Netherlands: national legislation specifies the particular words that may be used to identify a product as 'GM(O)-free', but does not specify a logo;
- Austria and Germany: national legislation sets out both the words that may be used and provides for non-prescriptive logos; and
- All four countries: private operators may use their own logo, if they follow the national rules.

Private operators have also taken a variety of approaches.

Labels that refer to a number of quality attributes have been identified in Germany, Austria and France. Mandatory and harmonised EU labelling rules have been established for organic products.

Non-GM supply chains do not employ labels, but marketing materials may contain reference to the 'GM(O)-free' status of the supply chain or products. In the Netherlands, several producers claim to be 'gentechvrij' (i.e. 'GMO free') in their general communications. In other Member States, such as the UK and Sweden, many manufacturers and retailers maintain non-GM supply chains for their products. Where product labels themselves do not make 'GM(O)-free' claims, websites may provide information

on the non-GM policy. In Sweden, national guidelines have been established to facilitate GM(O)-free supply chains.

2 - Product scope

National legislation in Austria, France, Germany and the Netherlands allows for any eligible product to be labelled as 'GM(O)-free' as long as it meets the national rules.

Private operators restrict GM(O)-free labelling to products from a particular animal species or of a particular type or extent of processing. For example:

- The 'Brez GSO' label in Slovenia covers plant and animal products (meat, milk and eggs), aquaculture and apiculture.
- The COOP Italia scheme covers a wide and heterogeneous scope of processed products, including those that are free from both GM soybean and maize ingredients. It also covers animal products including poultry, pork, beef, farmed fish, eggs, milk, cold cuts and cheeses.
- The Italian National Unification Body (Ente Nazionale Italiano di Unificazione) working group norm applies to food and feed products and covers animal products produced from animals fed on non-GM feed.
- Carrefour's scheme covers only food products from animals including veal, pork, poultry, eggs and farmed fish.
- In France the Loué scheme covers poultry meat and eggs.
- All tinned sweet corn produced in France carries a GM(O)-free label.

3 - Threshold levels for adventitious or technically unavoidable GM presence

The threshold levels for GM presence used in the EU vary in the product scope and the threshold level used. There are two threshold levels (<0.9% and <0.1%) used for two general product categories to which the limits are applied: food and feed.[2]

Thresholds for food and feed vary by scheme, such that <0.9% may be set for feed and/or food and <0.1% may be set for feed and/or food. There is variance in this practice across Member State and private operator schemes.

In very restrictive schemes, such as that in use in the Netherlands, 'zero' is the target but the threshold level is set at <0.1% due to analytical constraints. Nevertheless, the Dutch authorities do not use analytical methods in practice because there is only one 'GM(O)-free' product on the market which is verified through documentation.

4 - Input specifications and exemptions

GM plants or microorganisms can be used in several categories of inputs to food production. In addition to the direct use of GM plants and their products for food and/or feed production, GM plants may be used to produce additives for food and/or feed. There are also veterinary pharmaceuticals which are produced using modern biotechnology. Use of these GM inputs is specifically prohibited from most 'GM(O)-free' schemes operating in the EU.

Member States that wish to provide more opportunities for producers to label products as 'GM(O)-free' have granted exceptions to the general rules that exclude these inputs. Operators would otherwise find it very difficult if not impossible to ensure a supply chain that did not rely on one or more GM input. In the Netherlands, where a very strict approach is used, only one product is available on the market carrying the 'GM(O)-free' label.

[2] A <0.01% threshold level has also been identified for seed, which is used by private operators in two instances.

5 - Minimum non-GM feeding times for animals

Process-based approaches to assuring 'GM(O)-free' status have been adopted for GM(O)-free labelling schemes involving animal products. Process-based approaches rely on documentation and other means of assessing the non-GM status of the supply chain rather than analytical tests. The baseline data demonstrate that where Member States have legislation, minimum non-GM feeding times for animals vary along two dimensions:

- The amount of time that animals must be fed on non-GM feed and the way in which the feeding time is framed (i.e. as the time from birth, the time from production/slaughter, or the total period of fattening during which non-GM feed must be used); and
- The type of product/animal species covered.

Member States have developed legislation and guidelines for non-GM feeding time requirements. The greatest variation in such requirements occurs in Member State legislation:

- In Finland, the Netherlands and Switzerland, all animals must be fed on non-GM feed from birth.
- In Austria, the minimum non-GM feeding time for dairy animals is two weeks before milk production while Germany requires three months, and France six months.
- For poultry, both Austria and France require non-GM feed from three days from birth. In Germany the requirement is non-GM feed 10 weeks before slaughter.
- Pigs must be fed on non-GM feed for approximately 4.5 months before slaughter in France, for four months before slaughter in Germany and for the total period of fattening in Austria.
- The requirements are more consistent for egg production. Austria, France and Germany all require non-GM feed for six weeks before egg production.
- Cattle must be fed non-GM feed for 12 months before slaughter in Austria, France and Germany. Additional rules apply in these Member States for small ruminants, horses, and fish.
- In Austria, these minimum feeding times are transitory provisions to 2017, after which all animals must be fed non-GM feed from birth. In practice, operators currently try to feed animals non-GM feed from birth.

Private operators have set their own non-GM feeding time requirements. The requirements generally match the strict approach taken in Finland, the Netherlands, and Switzerland where non-GM feed is required from birth for all animals before production or slaughter.

6 - Certification, controls and monitoring requirements

Some of the schemes operating in EU Member States use certification bodies that meet the scheme requirements to certify individual operators wishing to make 'GM(O)-free' claims or operate a non-GM supply chain. For example, the Austrian Federal Ministry for Economy, Family and Youth introduced guidelines for the risk-based control of the absence of GMOs. The scheme includes guidelines for self-controls, external controls and oversight from an accredited independent body as well as a compulsory monitoring system. Compliance must be checked at all productions steps and the certifying authority must be displayed on the label.

Other schemes do not require certification but provide guidance on this matter. For example, the German legislation does not require certification but producers of non-GM feed are advised to obtain certification. Verification of compliance with legal rules is the responsibility of the competent food control authorities of the federal states. Where non-compliance is found by the certification body, the operator's right to use the 'ohne gentechnik' label may be withdrawn. Some of the schemes run by private operators also use certification bodies to certify individual operators wishing to make 'GM(O)-free' claims or operate a non-GM supply chain.

The use of GM(O)-free labels is expected to grow in the near future in some markets, although some operators are moving away from non-GM supply chain requirements.

The GM(O)-free labelling outlook in the EU is a projection of the outcomes that may occur if no action is taken at EU level and operators and national governments continue to develop their own GM(O)-free labelling schemes on a business-as-usual basis.

The market share of GM(O)-free products in the EU cannot be determined with existing data, but where data at local and national levels exist, the schemes tend to have limited market share

Though there are some 'snapshots' of the market situation, robust time series data on sales of GM(O)-free labelled products are not readily available either in the public domain or via market research organisations. Direct contact was made with label operators and some assessments have been possible, but complete information is unavailable for the different schemes operating across the EU. In the cases where data on market share exist, these schemes tend to have limited market share – with the exception of the government-led Austrian GM(O)-free label scheme which has much broader coverage (including 100 per cent of eggs and dairy). The use of GM(O)-free labels is expected to grow in the near future in some markets (e.g. Germany), although some operators are moving away from non-GM supply chain requirements (e.g. in the UK).

EU consumers express a preference for GM(O)-free products, but attitudes are changing towards GM

It is difficult to directly evaluate consumer demand for GM(O)-free labelling in the EU since no such labelling scheme has been broadly implemented and EU-wide consumer surveys have not been undertaken on this issue. Most available studies indicate that EU consumer attitudes towards GM products are generally negative, and some consumers show a willingness to pay for GM(O)-free products. But some studies indicate that consumer aversion to GM is decreasing over time, and willingness to pay studies may overestimate consumer preferences.

Attitudes are notoriously poor predictors of behaviour; there is an evident lack of consistency between people's engagement in ethical issues and their food choices. Individuals' decisions can therefore differ drastically between when they are hypothetical, as in a contingent valuation study or other survey, and when they involve an actual commitment to purchase, especially where the study does not assess purchasing decisions at specific price levels. Expressed negative consumer perceptions of GM products do not always translate directly into purchasing behaviours; consumers who say they would not buy GM foods when surveyed have been found to do so in some cases in real life.

Market growth is an indirect indication of consumer demand

Nevertheless, it is clear that there is a market for GM(O)-free products in the EU. Market demand can be considered an indirect indication of consumer preferences for GM(O)-free foods. It is impossible, however, to determine from such data whether there is a direct link between purchases of GM(O)-free products and consumer preferences for this attribute, or only an association. Other factors may influence purchases of GM(O)-free products that are not directly related to this quality, particularly when a product has multiple quality attributes.

Producing GM(O)-free products entails significant costs in most cases, and these are rarely reflected in additional costs to consumers

Some retailers and manufacturers use GM(O)-free labels or maintain non-GM supply chains due to expressed and revealed consumer demand for these products. But producing GM(O)-free products entails significant costs in most cases, and these are not often reflected in additional costs to consumers, but are rather absorbed by the supply chain. Price premia have been observed on some GM(O)-free products, but many products are priced no differently than equivalent conventional products. Some operators are concerned about their ability to maintain a supply of non-GM feed for livestock in the future.

Variations across GM(O)-free labelling schemes suggest potential underlying Single Market and consumer protection issues. A majority of stakeholders and Member States also show an interest in harmonisation. The assessment of the current evidence, however, does not indicate a marked need for harmonisation at the present time.

The different approaches to negative labelling in the EU can give rise to issues that include:

- Consumers being misled by labels where labelling scheme standards differ across schemes and/or the standards underlying the schemes do not match consumer expectations from a GM(O)-free label.
- Consumers being confused because there are too many different labels on product packages (i.e. labelling proliferation).
- Food business operators facing challenges where the single market does not operate smoothly, such as additional costs or lack of market access.

Consumers may find it difficult to interpret and understand GM(O)-free labels

Food labels help consumers to exercise their preferences, and can be an effective means of communicating useful information to consumers. But most stakeholders and Member State representatives consulted for this study did not indicate that lack of information was a major concern for consumers regarding GM(O)-free labels.

Although most consumers claim to read food labels often or sometimes, consumers can find it difficult to identify the information, even when it is present. This suggests that even if a label is present, consumers have not necessarily seen, read or processed the information. Even where consumers identify and process the information contained on labels, some consumers struggle to understand the information provided. For example, consumers may be misled by a 'GM(O)-free' label used for livestock products, which could be interpreted to suggest that the animal from which the product was produced was not genetically engineered, whilst the label actually refers to the fact that the animal was fed on non-GM feed.

There are many labels in the market that indicate quality food attributes. Their proliferation can increase the risk of consumer confusion and misunderstanding, and reduce the effect of food businesses' efforts to put in place sustainable certification schemes. A move towards clearer and more understandable food labels has been one of the aims of the recent review of the EU food labelling legislation. A majority of all respondents for this study believe that the current situation creates consumer confusion due to the existence of multiple labels.

Some studies also suggest that consumers expect standards of purity in products labelled as GM(O)-free that are higher than what is required by existing GM(O)-free labelling schemes. There are also GM(O)-free verification issues, especially where labelling is process-based, rather than product-based, and thus relies on an audit trail rather than testing. Consumers are generally sceptical of negative food claims. Several studies have also found that consumers react negatively to GM(O)-free claims.

The GM(O)-free food market is potentially vulnerable to problems of false labelling because consumers are unable to determine the quality of the product even after consumption. Exposure of false claims can erode consumer trust in GM(O)-free labelled products.

Although most respondents to the consultation for this study believe that the current situation causes problems for the European single market, there is little supporting evidence to substantiate this view

Operators may encounter difficulties with the current situation in the EU where multiple GM(O)-free schemes co-exist. For example:

- Variation in national requirements may inhibit the smooth operation of the single market and create an 'uneven playing field' for producers operating under the different schemes.

- Having multiple schemes is likely to increase the monitoring, verification and certification burden on the sector.

The survey conducted for this study asked respondents whether the current situation regarding ‘GM(O)-free’ schemes causes problems for the European single market. Overall, 84 per cent of respondents answered ‘yes’, including 44 out of 52 national stakeholders (85 per cent of national stakeholder respondents), 9 out of 10 EU representative associations and other EU level organisations (90 per cent of respondents) and 23 out of 29 MS representatives (79 per cent of respondents). Little other evidence exists of problems related to the operation of the single market arising from the current use of GM(O)-free labelling in EU Member States.

Nevertheless, additional Member States are developing regulation in this area or considering the possibility of doing so and the market is maturing, which could create new and as yet unanticipated issues for the single market in the future. There is potential to revisit the case for harmonisation at a later date.

Six elements of a potential EU-wide harmonised GM(O)-free labelling scheme were assessed

The second stage of the study involved identifying a set of core elements that should be considered in a potential harmonised system at EU-level for GM(O)-free labelling.

Research conducted in the first stage on the current specification of GM(O)-free labels in use across the EU and in some third countries showed that active schemes contain most or all of the following elements:

- Labelling rules, including the wording used, the format of the label and in some cases, a logo;
- Indication of the scope of products covered;
- Threshold levels for adventitious or technically unavoidable presence;
- Specification of inputs to be excluded and any exceptions;
- Minimum non-GM feeding times for animals fed on GM feed; and
- Certification, inspection and monitoring procedures.

These elements would form the ‘building blocks’ for a harmonised EU-level scheme for GM(O)-free labelling. Three possible options have been examined for each element, as summarised in Table 1.1. Their impacts have been assessed by comparison with a *status quo* reference scenario in which GM(O)-free schemes continue to be developed at national level and by private operators. A future EU scheme could, in principle, use all the available elements or only some them, imposing common EU rules in respect of some aspects of GM(O)-free labelling schemes but not introducing additional regulation at EU level for other aspects.

The elements that may be included in a harmonised approach to GM(O)-free labelling in the EU were considered on their own merits. The analysis identified where impacts are likely to be most significant and/or where outcomes are uncertain, or conflicting information makes it difficult to determine the most likely direction of change arising from a particular choice. The assessment considers potential impacts on consumers, operators and national authorities of elements that may comprise a harmonised approach to GM(O)-free labelling against the interaction with and value-added compared to EU organic rules and according to the following assessment categories: economic impacts, social impacts, trade impacts, consumer impacts, and environmental impacts.

Table 1.1 Proposed elements and options

Element	Most restrictive option	Intermediate option	Least restrictive option	*Status quo*
Labelling rules	Prohibitive labelling rules	EU common terms, rules and/or logo	EU guidelines	N/A
Product scope	N/A	Only certain products are covered	All products are covered	N/A
Threshold levels	<0.1%	<0.1% - food <0.9% - feed	<0.9%	None specified
Input specifications and exceptions	No GM inputs allowed and no exceptions	No GM inputs allowed, but some exceptions	GM inputs excluded, but no specific mention of exceptions made	None specified
Minimum non-GM feeding period	Non-GM feed from birth	Minimum non-GM feeding time established	EU rules do not specify minimum times –flexibility for operators and MS	None specified
Certification, inspection and monitoring	Certification required + specify inspection and monitoring rules	Inspection and monitoring rules applied, but certification not required	EU guidance, but no requirements	None specified

Labelling rules are the core element of a potential harmonised GM(O)-free labelling scheme

Labelling rules are the core element of any harmonised approach to GM(O)-free labelling and will determine whether labelling is allowed or prohibited. If labelling rules are not set, the situation in the EU will remain as it is (the *status quo*), with multiple GM(O)-free labelling schemes developing through national legislation or private operator rules and with continued variance between these across the EU. Labelling rules are the only element of a harmonised approach that may be set out independently of other elements.

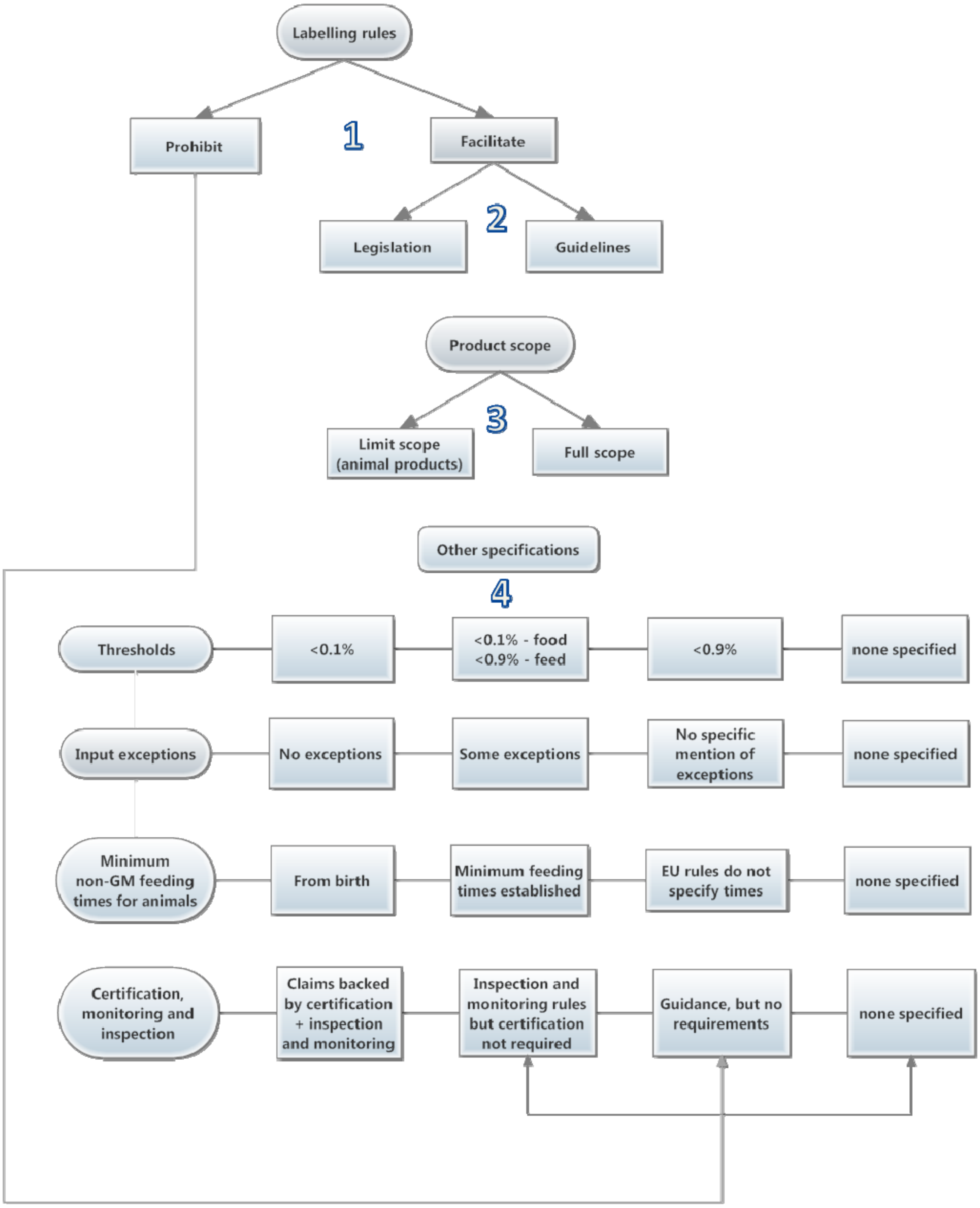
A harmonised approach could also specify the product scope and strictness of the elements

Figure 1.2 illustrates the priority for specifying the elements, starting with labelling rules and product scope. A harmonised GM(O)-free approach can also specify the scope of products covered by the scheme and the strictness of the rules applied to the scheme, including:

- Threshold levels for adventitious or technically unavoidable GM presence;
- Exceptions for the use of certain GM inputs; and
- Minimum feeding times for animals fed on non-GM feed.

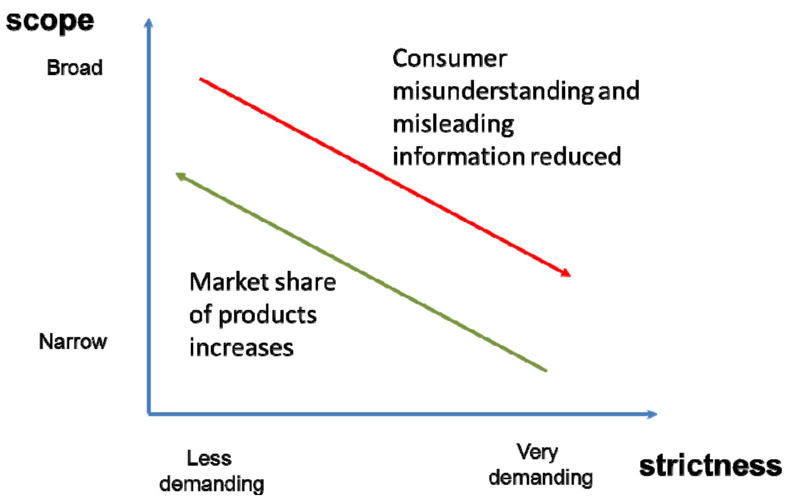
The rules could be stricter for some elements than others. For example, different threshold levels for adventitious or technically unavoidable presence may be specified for animal products and food products as they are in many existing GM(O)-free schemes, and different minimum non-GM feeding times could be defined for different livestock animals.

Figure 1.2 Labelling rules and product scope are the two elements that require specification for a harmonised approach; other elements may be specified depending on the labelling approach and scope of the scheme



In general, moving from a broad scope and less demanding criteria to a narrower scope and more demanding criteria results in an improvement in consumer understanding and the match between expectations and underlying standards, but increased negative impacts on producers of GM(O)-free products and fewer GM(O)-free products on the market.

Figure 1.3 General impacts arising from scope and strictness specifications in a GM(O)-free labelling scheme



Requirements for certification of GM(O)-free operators and any inspection and monitoring rules could be specified in a harmonised scheme, but are not essential. Evidence suggests that consumer trust increases where government is involved in setting out specific rules to ensure that all operators have met a common set of requirements and that they are complying with the rules. But existing laws may also be used to monitor and enforce GM(O)-free labelling rules without creating new requirements.

1 Introduction

This is the draft final report for the study on the state of play in the European Union (EU) on GM(O)-free food labelling schemes and assessment of the need for possible harmonisation. The study was delivered by a team led by ICF GHK for the Health and Consumer Protection Directorate General (DG SANCO). ICF GHK worked with the support of:

- ADAS Ltd., UK;
- LIS Consult, The Netherlands;
- Giessen University, Germany; and
- Istituto di Economia Agro-alimentare, Italy.

The assignment examines existing GM(O)-free labelling schemes in the EU and identifies and analyses elements to be considered in the context of a possible EU harmonised approach to such labelling. The term ‘GM(O)-free’ is used in this report to indicate that the requirements underlying different labelling schemes may involve product requirements (‘free from GM materials’) or process requirements (‘free from the use of GMOs in the production process’).

Building on the evaluation of the GM food and feed legislation, this study examines the extent to which ‘GM(O)-free’ schemes are in use in different Member States, considers their specification and impacts, defines possible elements and combinations of elements for an EU harmonised approach to such labelling and assesses the implications of different formulations. This report provides the results of the study.

The first half of the report provides a summary of the current state of play (i.e. the baseline scenario) on GM(O)-free schemes in the EU and third countries based on information gathered through an EU-wide stakeholder consultation, seven country case studies, international experiences with GM(O)-free labels, and a literature review on consumer attitudes and behaviours towards GM(O)-free and other relevant labelling schemes.

The second half of the report identifies elements that may be included in a harmonised EU GM(O)-free scheme and a preliminary impact assessment of those elements.

The complete case studies of GM(O)-free schemes operating in Austria, France, Germany, Italy, the Netherlands, Sweden and the United Kingdom are provided as a series of annexes in a separate document.

2 Study context

This section of the report:

- Briefly outlines the EU's legislative framework for product labelling on the basis of GM status;
- Describes the types of label currently in use and associated issues;
- Explains the study scope and approach; and
- Describes the method underpinning the evidence gathering phase of the study.

2.1 The EU's current legislative framework for labelling GMOs specifies when 'positive' labels are required and allows for use of 'negative' labels

The EU regulates products that contain genetically modified organisms (GMOs). The legislative framework for labelling products that contain or are produced with GMOs specifies the conditions for 'positive labelling' (i.e. labelling that affirms the presence of GMOs in the product) and is harmonised at EU level. 'Negative labelling' (i.e. labelling indicating that GMOs are absent from the product) is not forbidden by the legislation but is not harmonised at EU level. Negative labels are used at multiple levels across the EU.

Regulation (EC) No 1830/2003 regulates the traceability and labelling of GMOs as well as food and feed products derived from GMOs. It was developed alongside Regulation (EC) No 1829/2003 on GM food and feed. The two regulations are designed to operate together and rely on each other for certain requirements.

The legislative framework specifies conditions for EU harmonised 'positive labelling' (>0.9% GM presence). It does not apply to foods containing GM material at <0.9%, *provided that this presence is adventitious or technically unavoidable*. Animal products are specifically excluded from the EU rules governing positive GM labelling. **'Negative labelling' is neither forbidden nor specifically regulated** (contains <0.9% GMOs) but general food labelling rules apply.

2.2 Different approaches to GM(O)-free labelling are currently used in the EU and some issues with this variation have been identified

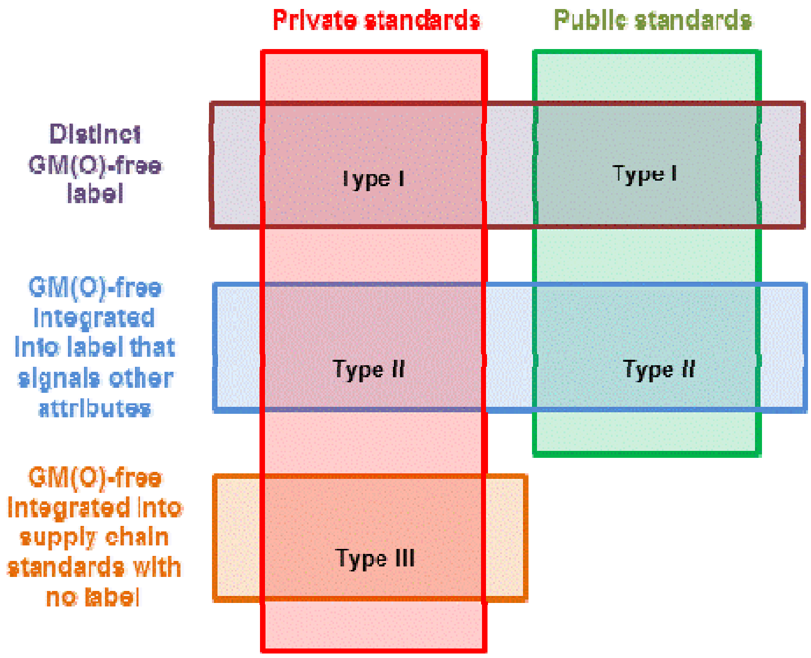
Current 'negative' labelling approaches are based on product and/or process requirements, and the labels can reflect these differences (e.g. GM-free or GMO-free labels). For the purposes of this study, the term 'GM(O)-free' captures the multiple possibilities for these types of label.

There are various types of GM(O)-free schemes being used in the EU, including both private and public standards, as well as explicit and implicit standards (i.e. where 'GM(O)-free' criteria are embedded within a wider label). The following 'GM(O)-free' approaches, all of which are assessed in this study, are in use in the EU:

- **Type I -** 'GM(O)-free' is the main focus of the label, and the label explicitly highlights the 'GM(O)-free' attribute to the consumer;
- **Type II -** 'GM(O)-free' is one requirement of an explicit product label to the consumer which also includes other product attributes (e.g. organic, Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI), eco-labels); and
- **Type III -** 'GM(O)-free' is a requirement of private supply chain standards, but is not supported by a specific product label for the consumer.

These types are shown in Figure 2.1.

Figure 2.1 The EU market currently features GM(O)-free schemes that are defined by private and public standards, and in which the GM(O)-free attribute is either a free-standing label, packaged in a product label with other attributes, or integrated into own label standards but not given a distinctive label



A 2009 evaluation of the GM food and feed legislation conducted on behalf of DG SANCO identified a range of benefits and drawbacks arising from the current situation with non-harmonised 'negative labelling' across the EU (FCEC 2010). The study also suggested that there is mixed support for harmonisation in this area amongst stakeholders and Member State representatives.

It found that different approaches to negative labelling operating in the EU may present challenges for consumers and food business operators across the food chain. The specific issues it identified were:

- GM(O)-free schemes currently exist in several Member States;
- These schemes are variously regulated by public authorities or developed by private companies;
- The 'GM(O)-free' branding may suggest comparability across such schemes that does not exist since there is variation in requirements and labels;
- Consumers may be misled by the labels through inconsistencies in the standards across schemes and/or a mismatch between consumer expectations and the actual standards or practices 'behind the labels';
- Different national requirements may impede the smooth operation of the European single market and unequal conditions for producers operating under the different schemes; and
- Monitoring, verification and certification costs for exporters and burden on authorities may be multiplied for each market.

The report also identified some potential issues associated with harmonisation of GM(O)-free schemes, including :

- Consumer confusion where positive and negative labels operate in tandem;
- That EU labels could be misleading due to the challenge in guaranteeing that products are entirely free from GM material; and

- The organic sector may already fulfil GM(O)-free consumer needs.

The study found that more than two-thirds of MS competent authorities favour a harmonised labelling scheme because they believed it may put an end to confusion caused by different national schemes. Most MS CAs also favoured a harmonised approach co-existing with positive labelling. Fewer than half of stakeholders favoured harmonisation, however. Amongst those stakeholders that favoured harmonisation, most favoured those provisions co-existing with positive labelling.

2.3 This study provides a detailed assessment of current GM(O)-free labelling schemes and the potential for a harmonised EU-wide approach

DG SANCO commissioned the present study to examine existing GM(O)-free labelling schemes in the EU and identify and analyse elements to be considered in the context of a possible EU harmonised approach to such labelling. The contractor was required to:

- **Establish the baseline**: examine the extent to which 'GM(O)-free' schemes are used in different Member States and consider their specifications, interactions and impacts;
- **Option development**: examine possible elements and combinations for a potential EU harmonised approach to 'GM(O)-free' labelling; and
- **Assess implications**: analyse the different scenarios against the baseline situation.

The study covered both schemes defined in legislation and guidelines (i.e. public standards) and those defined in private standards. Private schemes include both explicit GM(O)-free labelling as well as private standards that specify a GM(O)-free supply chain but do not specifically label products as 'GM(O)-free'.

Information was gathered on schemes operating in all EU Member States and Switzerland. In-depth case studies of schemes have also been conducted for seven Member States (Austria, France, Germany, Italy, the Netherlands, the United Kingdom, and Sweden). These seven countries represent the spectrum of possibilities for GM(O)-free schemes currently operating in the EU:

- Austria, Germany and France and the Netherlands have legislation or guidelines to facilitate 'GM(O)-free' labelling;
- Sweden, conversely, has legislation expressly prohibiting such labelling;
- In the United Kingdom there is a large number of private operator-led non-GM supply chains, but no formal government position on this issue; and
- Italy has regional government initiatives as well as a variety of explicit and implicit GM(O)-free schemes led by private operators.

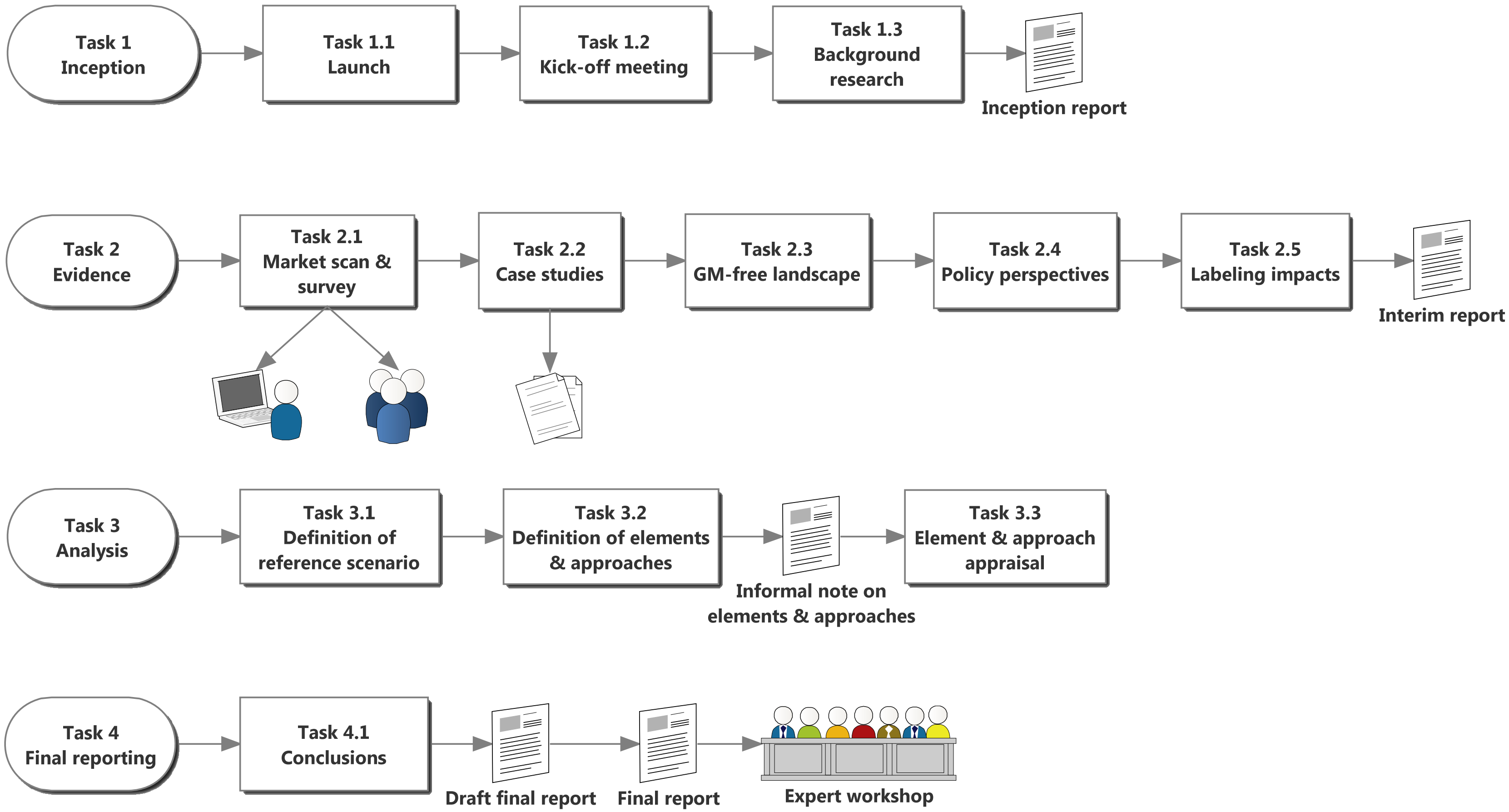
Additional information was also obtained on schemes operating in Belgium, Finland, Slovenia, and Switzerland[3] through a second round of consultation with stakeholders, but these were not developed as stand-alone case studies. Evidence was gathered on GM(O)-free schemes in a selection of third countries: Australia, Canada, China, India, Japan, New Zealand, and the United States.

2.4 Method

The project workflow is illustrated in Figure 2.2. This subsection focuses on the evidence gathering phase of the study (Task 2). The work undertaken in Task 2 informed the definition of the reference (baseline) scenario, the specification of elements and approaches to harmonisation and assessment of the potential outcomes from EU harmonisation.

[3] Switzerland is included with EU countries because it is a member of the European Free Trade Association (EFTA), which establishes a free trade zone for the movement of goods with all of its European members.

Figure 2.2 Project workflow



The evidence gathering task had five components:

- A **Market scan** to identify GM(O)-free schemes across the EU-28 Member States and third countries, including government-led and private initiatives. This includes information on the extent of Type I (explicit, stand-alone labels), Type II (explicit labels that combine GM(O)-free and other qualitative attributes in a label), and Type III (implicit, supply-chain assured non-GM products) schemes.
- **Case studies** of existing approaches in seven Member States: Austria, France, Germany, Italy, the Netherlands, Sweden and the United Kingdom. Case studies covered:
  - Type (e.g. public / private, explicit / implicit), history and motivations for the scheme;
  - Legislative framework and basis (if applicable);
  - Scope and specification of the scheme;
  - Operation, administration and verification;
  - Type of labels used (if applicable) and their implementation;
  - Evidence on consumer impacts;
  - Extent of intra-EU trade in these products; and
  - Trends and future plans.
- Definition of the **GM(O)-free labelling landscape**: specification and market share of current GM(O)-free labelling schemes;
- Collection of information on **policy perspectives** regarding GM(O)-free labelling in Member States and at EU level:
  - Perspectives on the case for GM(O)-free labelling;
  - Motivations and objectives of legislation and policy in those countries where action has been taken to facilitate or support GM(O)-free labelling; and
  - Defining the context within which dedicated GM(O)-free labels would operate and identify any interface, harmonisation and/or consistency issues relevant to the definition of 'GM(O)-free' labelling schemes.
- **Examination of labelling implications**, including an assessment of the accuracy, reliability, feasibility, efficiency, related costs and perceptions of the labels and covering the social, economic and environmental implications of potential GM(O)-free labelling harmonised at EU level.

A combination of literature review / desk research and consultation with Member State representatives and stakeholders was used. The following sections describe each of these approaches and the overall result/response.

2.4.2 Literature review and web-based desk research

A literature review and web-based desk research were conducted. These covered:

- The academic literature;
- The grey literature (e.g. government research and evaluation reports); and
- Outputs from consultative and engagement processes, such as the High Level Forum for a Better Functioning Food Supply Chain.

The literature review was carried out in English, German, French, Spanish and Italian in order to reduce the chances of English language bias in the results. All reporting is provided in English. A summary of the literature review meta-analysis is provided in Annex 8. A list of the documents consulted is provided in Annex 9.

The project team scanned and assessed information on the impacts identified in all the publications and studies that have addressed the accuracy, feasibility, reliability, efficiency,

related costs and consumer perceptions and understanding of these labels. The economic, social and environmental implications were also assessed. Information was also collected on other types of food label in order to identify effects and dynamics that could inform an assessment of the implications of policy options relating to GM(O)-free labelling.

2.4.3 Consultations

Use of GM(O)-free labelling in the EU is not well documented. The primary tool for gathering information to inform the baseline situation on GM(O)-free schemes was direct consultation with governments and stakeholder representatives throughout the supply chain. Consultations were used to gather information on policy approaches, market share of GM(O)-free products, benefits and drawbacks of the current situation in the EU and expectations for a harmonised approach.

A website was developed to provide information on the study and an opportunity for stakeholders that were not directly contacted by the study team to register their interest in the study and complete a questionnaire and/or participate in an interview. In both the interviews and questionnaires, consultees were asked to:

- Provide **information about current schemes** in EU MS (public / private); and
- Explain their **views on the benefits and drawbacks** of existing GM(O)-free schemes and potential implications of harmonisation.

A questionnaire was devised to capture baseline information and views about GM(O)-free schemes across the EU-28 Member States. Two questionnaire versions were developed and circulated to:

- **National stakeholders** across the food chain, and other interested organisations (e.g. NGOs); and
- **Member State representatives** across the EU-28, including the Competent Authority and representatives of the EU Standing Committee on the food chain and animal health (SCFCAH).

The questionnaires were provided in English, French, German and Italian. The response rate is provided in Table 2.1. A copy of the English language version of the national stakeholder and Member State representative questionnaires is provided in Annex 1.

Table 2.1 Questionnaire response rate

Respondent type	Number of submitted questionnaires	Notes
Government representatives	29 questionnaires from 24 countries – 26 out of 28 MS responded	Estonia did not submit a questionnaire, but indicated that GM(O)-free schemes are not operating in that country The response for Germany was provided through VLOG, the organisation responsible for GM(O)-free labelling in that country No response was received from Luxembourg or Bulgaria
National stakeholders	52	Including 3 companies with multi-country coverage Representatives responded from 20 countries, including Switzerland MS that are not represented by national stakeholder surveys include: BG, DK, LU, LT, LV, SK Responses were received from national stakeholders covering producers, importers and exporters, manufacturers, retailers, consumers and NGOs. This includes dairy, meat and livestock, organic foods, oil producers and processors,

Respondent type	Number of submitted questionnaires	Notes
		soya producers and processors, the seed industry (including potatoes), producers of crops other than soya, compound feed processors, and bakery representatives
EU stakeholders	10	The questionnaire was not directed at EU industry associations but some preferred to submit a questionnaire instead of, or in addition to, an interview Responses were received from the following industry representative associations: biotechnology, producers, processors and traders of cereals, food enzymes, starches and vegetables, retail and manufacturing, consumers [Interviews also covered the dairy trade, organic foods, an environmental NGO, and the compound feed sector]

The consultation included interviews with:

- National stakeholders in the case study countries and EU-level stakeholders across the supply chain (including individual companies and industry associations operating at national and EU level);
- Member State representatives in the case study countries; and
- Representatives from selected Directorates General of the European Commission (DG Health and Consumers (SANCO) and DG Agriculture (AGRI)).

Details of the interviews completed are provided in Annex 3.

Table 2.2 Case study interviews conducted

	AT	DE	IT	NL	FR	UK	SE	Total
Government representatives	2	1	1	2	2	1	1	10
National stakeholders	13	8	7	7	7	4	3	49
Total	15	9	8	9	9	5	4	59

Following receipt of the questionnaire responses and assessment of the information provided, the study team contacted a sub-set of respondents where additional context or clarification was required. In some cases the team also requested information from contacts named in the survey responses by the original respondent. In total, 33 different public and private entities were contacted to obtain additional information and 23 responses were received by the study team. Responses were provided both by email and through short telephone interviews.

The study team contacted or was contacted by 31 EU level organisations regarding their participation in the stakeholder consultation. All of the organisations were invited to participate in an interview and 11 indicated that they wished to participate. Ten interviews were completed; one organisation did not respond to requests by the study team to schedule the requested interview.

Some EU level associations preferred to complete the questionnaire on behalf of or in addition to responses from their members. The study team received ten questionnaires from EU level associations. Four organisations submitted a questionnaire and participated in an interview. The questions that were covered in the interview were also covered in the questionnaire to ensure that all EU level responses could be compared. In addition:

- Eight organisations did not respond to our request;

- Two organisations responded to indicate that their organisation is not discussing the issue at this time;
- One organisation referred us to their members; all members were contacted by the study team and their replies or lack thereof are included in this overview and in Table A4.1, Annex 4;
- One organisation responded to indicate that they would like to participate, but despite engagement, no further response was provided; and
- One organisation did not respond to our invitation directly, but participated in a JRC workshop on the topic of non-GM supply chains, in which a member of the study team was also a participant. An indication of their views was presented at this workshop and has been incorporated into the results for this study.

Table A4.1 in Annex 4 provides details of the organisation names and their response to our invitation.

3 GM(O)-free labelling 'landscape' in the EU and Switzerland

This chapter provides a summary of the current use of GM(O)-free labelling schemes in the EU based on information gathered through an EU-wide stakeholder consultation, seven country case studies, international experiences with GM(O)-free labels, and a literature review on consumer attitudes and behaviours towards GM(O)-free and other relevant labelling schemes.

This section identifies the different labelling schemes in operation across EU Member States and Switzerland, which is a member of the European Free Trade Association (EFTA), covering:

- Scheme type (e.g. public / private, explicit / implicit), history and motivations for the scheme;
- Legislative framework and basis (if applicable);
- Product scope and specifications of the scheme, including threshold levels for adventitious or technically avoidable presence and rules regarding the use of certain GM inputs and any exceptions;
- Operation, administration and verification procedures; and
- Types of labels used (if applicable).

3.1 Government-led Type I schemes: explicit GM(O)-free labelling rules and guidelines

Three different approaches to government-led GM(O)-free labelling rules have been identified in ten Member States and Switzerland.[4] The remaining 18 Member States have not become directly involved in GM(O)-free schemes.

- Legislation that facilitates GM(O)-free labelling has been identified in two Member States: Germany and France. Austria has developed guidelines to facilitate GM(O)-free labelling as well.
- Croatia, Greece and Luxembourg are currently developing facilitative legislation, though no rules are yet in place.
- Legislation that allows GM(O)-free labelling under highly restrictive circumstances has been identified in the Netherlands and Switzerland. Finland has developed guidelines to assist the supply chain with GM(O)-free labelling, but under similarly restrictive circumstances to those set out in the legislation adopted by the Netherlands and Switzerland.
- Two countries, Belgium and Sweden, have labelling legislation in place that prohibits GM(O)-free labelling. In both cases, the legislation itself does not refer specifically to GM(O)-free labels, but guidelines for implementing the legislation explain how the general rules apply in the specific case of GM(O)-free labels.

Table 3.1 provides an overview of the type of government-led policy and the title of the applicable legislation or guidelines. Complete copies of the legislation are provided in the Annexes to this report in their original language.

[4] Switzerland is included here as it is a European Free Trade Association (EFTA) country.

Table 3.1 Type I schemes: government-led explicit GM(O)-free label

	AT	BE	CH	DE	FI	FR	EL	HR	LU	NL	SE
Facilitative			✓*								
Legislation						✓	✓*	✓*	✓*	✓	
Guidelines	✓				✓						
Prohibitive		✓									✓

** Facilitative GM(O)-free legislation in preparation*

A variety of motivations have led to national government positions, and in some cases, regulation, of GM(O)-free labels. These include:

- **Ensuring consumer provision of information and consumer choice**: this is a primary motivation in the policy position of Austria, Germany, and France.
- **Allowing GM(O)-free labelling on animal products where positive labelling is currently not required under EU law**: this is an important motivation in the policy position of Austria and Germany, for example.
- **Allow producers of 'GM(O)-free' products to compete in the marketplace**: this is another important motivation in the policy position of Austria and Germany.
- **Information should not be misleading**: This is a primary motivation in the policy position of the Netherlands and Sweden.
- **Harmonisation at EU level is desired**, but without harmonisation, national regulation can be used: this is an important motivation for the Dutch regulation.
- **Avoid consumer confusion**: This is a primary motivation for the UK position that if harmonised EU labelling were to be introduced, it should not provide for allowances or threshold levels for GM ingredients or processes.

3.1.2 Facilitative regulation and guidelines

This section summarises the basis, rationale and historical context, where available, for the development of GM(O)-free legislation and guidelines in each of the countries where such rules are present. Table 3.2 shows the title of the relevant legislation or guidelines in each country and the year(s) when it was developed and amended.

Table 3.2 Legislation / guidelines - overview

Country	Legislation or guidelines (year)	Most recent revision (year)	Title
AU	2007 (guidelines since 1998)	2012	'Austrian Food Book' – Codex Alimentarius Austriacus Vierte Auflage.
DE	2004	2008	EC GMO Implementation Act [*EG-Gentechnik-Durchführungsgesetz (EGGenTDurchfG): geregelt wird die Angabe 'ohne Gentechnik'*]
FI	2010	N/A	Evira *Vapaaehtoisen "tuotettu ilman geenitekniikkaa" – merkinnän käyttö elintarvikkeissa ja rehuissa* (Voluntary labelling for food and feed products 'produced without genetic engineering').
FR	2012	N/A	Decree number 2012-128 (30 January 2012) relative to the labelling of foods qualified as being derived 'without GMOs' [*Relative à l'étiquetage des denrées alimentaires issues de filières qualifiées 'sans organismes génétiquement' modifies*]

Country	Legislation or guidelines (year)	Most recent revision (year)	Title
NL	1999	1997	Decree on novel foods (29 October 1999) – Houdende Wijziging Van Het Warenwetbesluit Nieuwe Voedingsmiddelen (WNV)
CH	2005	2011	Ordinance of 23 November 2005 on genetically modified food [*IT: Ordinanza concernente le derrate alimentari geneticamente modificate; FR: Ordonnance sur les denrées alimentaires génétiquement modifiées; DE: Verordnung über gentechnisch veränderte Lebensmittel*]
EL	In preparation	N/A	AGRO 2 and AGRO 7
LU	In preparation	N/A	[unknown]
HR	In preparation	N/A	[unknown]

3.1.2.2 Austria

GM(O)-free labelling in Austria is based on the 'Guideline on GMO-free production and food labelling' as part of the Codex Alimentarius Austriacus. The guideline was developed in 1997 by the 'ARGE Gentechnik-frei' - a forum for different stakeholders from food production as well as environmental and other organisations. It was introduced in 1998 as a first edition of the Codex-guideline 'Gentechnikfrei'. The guideline was republished on 6 December 2007[5] and last amended on 21 December 2012.[6]

The rationale for the Austrian guideline is to allow producers of GM(O)-free products to compete in the marketplace and to recognise consumers' interests by allowing them to make an informed choice. The guideline was developed in order to enable producers to indicate when they exclude GM feed and food ingredients in their animal products. The stated objective of the guideline is to provide a basis for the production of GM(O)-free food by providing operators with the opportunity to declare food as GM(O)-free and by setting the rules for GM(O)-free production along the supply chain.

3.1.2.3 Germany

GM(O)-free labelling in Germany is based on the 2004 'EC-GMO Implementation Act'.[7] On 1 April 2008 the Bundestag (German Federal Parliament) amended the Implementation Act[8] so that the labelling of GM(O)-free food products is better regulated than previously and more applicable for producers. Controls are the responsibility of the Länder (state) authority. The Bundesland (federated state) has authority to survey food, feed and agricultural production on their territory.

The rationale for the German law is to enable consumers to make an informed choice. As in Austria, the legislation was developed in order to enable producers to indicate when they exclude GM feed ingredients in animal products. The label ('ohne Gentechnik' – i.e. 'without genetic engineering') is designed to meet the consumer demand for GM(O)-free food. Some parties (e.g. the Social Democratic Party (SPD) and Green Party) have called for European harmonisation of the GM(O)-free label.[9]

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[5] BMGF-75210/0014-IV/B/7/2007

[6] BMG-75210/0020-II/B/13/2012

[7] EG-Gentechnik-Durchführungsgesetz – EGGenTDurchfG

[8] Gesetz zur Änderung des Gentechnikgesetzes, zur Änderung des EG-Gentechnik-Durchführungsgesetzes und zur Änderung der Neuartige Lebensmittel- und Lebensmittelzutaten-Verordnung (EC-GMO Implementation Act and to amend the Novel Foods and Food Ingredients Ordinance)

[9] *http://www.gruene-bundestag.de/archiv/2008/januar/kennzeichnung-ohne-gentechnik-ist-wichtig.html*; http://dip21.bundestag.de/dip21/btd/17/017/1701790.pdf

3.1.2.4 France

The labelling of GM(O)-free food products in France is legislated under Decret no 2012-128 which was published in the French Official Journal on 31st January 2012 and came into force on 1 July 2012.[10] The decree describes the requirements for 'GMO-free' labelling for products produced in France, but does not apply to imported products from the European Union or from the European Economic Area. This means that non-GM foods legally produced in other countries within these areas with a 'non-GM' label different to the French labels may be sold in France. There is no mention of food products from countries outside these areas.

France has a national policy position and there has also been activity at regional level. The rationale for each of these is described below.

3.1.2.4.1 National policy position

The French policy on GM(O)-free labelling, transcribed into law by Decree no 2012-128 is that consumers should be free to choose whether or not to buy and consume products which contain or are produced from GMOs. Though this rationale is not stated as such, the decree refers to specific articles in the French GMO law of 2008 and the consumer code which relate to freedom to consume GM and non-GM products, as well as the principles of information provision, transparency and traceability.

The French government worked for several years on national rules for non-GM labelling as part of the implementation of the national GMO law of 2008 (La loi du 25 juin 2008 sur les OGM). The 2008 law modified the Environment Code to add an article on the freedom to consume and produce with or without GMOs, and this freedom to be guaranteed with respect to the principles of information provision, amongst others.

France has had a legal definition of GM(O)-free labelling since 2004 concerning the absence of GM.[11] This was considered restrictive at the time as it did not allow for the presence of GMOs above the threshold level of <0.1% or the use of biotechnology in additives.

3.1.2.4.2 Regional policy position

Several French regions and departments have signed up to the Florence Charter, a group of approximately 55 regions in the EU that wish to be GM(O)-free zones. The aim is to discourage GM agriculture and use of GM feed for local animal products, and to promote non-GM food production.

In many regions such as Brittany, non-GM food products are actively promoted by providing a list of labels which can be said to be GM(O)-free. These include many organic products, *Label Rouge* products and supermarket own labelled food products (described in greater detail in section 3.3). In the Poitou Charentes region, farmers have set up a 'Signé Poitou-Charentes' label, a voluntary label for food products meeting specific requirements including that the product must contain <0.9% GM in the product or feed. In Normandy, products with the Défis Ruraux label are GM(O)-free (with a tolerance level of <0.9%). All regional initiatives are voluntary.

3.1.2.5 Netherlands

The Dutch Decision of 29 October 1999 amending the national Novel Food law regulates the use of a 'prepared without gene technology' label (Staatsblad, 1999). The Decision sets out very strict requirements (described in sections 3.5.1, 3.6, 3.7.1, and 3.8.1) so that the 'prepared without gene technology' indication may only be used under very limited conditions (listed in article 1, sub 2 of Regulation 258/97).

[10] Décret n° 2012-128 *relatif à l'étiquetage des denrées alimentaires issues de filières qualifiées 'sans organismes génétiquement' modifiés*

[11] Note d'information n°2004-113-DGCCRF-16.08.20047

Following the implementation of the EU Novel Food Regulation (258/97), pressure on the authorities in the Netherlands to take additional steps regarding GMOs increased. In February 1997, the Dutch Parliament adopted a proposal calling on the government to facilitate the supply of 'GM(O)-free' products to consumers (Tweede Kamer 1997). In March 1998, the Dutch Retailers Association, several NGOs and 'Platform Biologica' (organic sector association) sent a letter to the relevant authorities, asking for measures to safeguard a 'GM(O)-free' supply chain by introducing a compulsory registration system for GMOs, coexistence regulation, and legal threshold levels for GM(O)-free feedstock (Consument en Biotechnologie, 1999).

In March 1999 Greenpeace Netherlands and the Dutch Consumers Association wrote a letter to Dutch supermarkets referring to an initiative by Sainsbury's in the UK to form an alliance for 'GM(O)-free' domestic brands and urging Dutch supermarkets to guarantee the same for their domestic brands (Consumentenbond, 1999). In their view, the EU Regulation did not cover a large enough number of products through positive GM labelling and consumers were not offered a fair choice as a result.

In 1999 organisations representing industry, retail, organic producers and consumers established a working group which developed a proposal based on the following principles:

- Facilitating consumer choice, especially for consumers with strong objections to the use of genetic modification in food production. For this group of consumers the regulatory requirements for positive labelling of GMOs were considered insufficient because they excluded from compulsory labelling products from animals fed with GM feed and the use of GM processing aids. Therefore, an approach with very strict conditions quite similar to the (first) German approach (1998) was proposed.
- Information should not be misleading. Therefore, the wording was important: 'GM-free' suggests total absence of GMOs, which cannot be guaranteed. 'Prepared without gene technology' reflects what can be guaranteed and what was thought to motivate consumer choice.

A pragmatic consideration was that consumers preferring products 'prepared without gene technology' belonged to the same category as consumers with a preference for organic products, and the major stakeholders preferred not to have an additional label that might confuse consumers. Organic products were therefore considered 'the real alternative choice' to GM products. It was also assumed that the incentive for non-organic food producers to use a separate label would be small.

3.1.2.6 *Italy – regional policy position, South Tyrol*

The South Tyrol government issued a notification to the European Commission regarding a draft amendment to existing legislation (Provincial Law, 22 January 2001) on labelling GM(O)-free products. Food and feed may be labelled as 'ohne Gentechnik' if they are 'without GMO characteristics'.[12] The requirements are very strict as in the Dutch regulation, without any exceptions for the use of GM feed, additives/enzymes, or veterinary pharmaceuticals.

3.1.2.7 *Finland*

Finland's approach to GM(O)-free labelling was, until recently, similar to that of Sweden (where GM(O)-free labelling is prohibited – see section 3.1.3.2 below). In 2010, the Finnish Food and Safety Authority, Evira, published guidelines for a voluntary approach to labelling products as 'produced without genetic engineering' for food and feed.[13] Retailers and producers now have the opportunity to include 'GM(O)-free' in their labels.

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[12] See Umweltbundesamt GmbH et al (2012)

[13] Evira (2010) *Vapaaehtoisen "tuotettu ilman geenitekniikkaa" – merkinnän käyttö elintarvikkeissa ja rehuissa* (Voluntary labelling for food and feed products 'produced without genetic engineering').

'GM(O)-free' labelling may be used only if the product does not contain any genetically modified material. Foodstuffs of animal origin may include a label indicating that they were 'produced without genetic engineering' or are 'GM-free' so long as the animal has not consumed genetically modified feed *at any stage* in its life cycle.

The Evira guidelines on 'GM(O)-free' labelling indicate that they were developed because mandatory labelling does not fully reflect consumers' information needs and expectations. In particular, EU rules do not specifically prohibit nor provide common criteria for voluntary 'GM(O)-free labelling. In the absence of EU level rules and due to actions taken at Member State level in this regard, Evira determined that it was necessary to provide its own guidelines for domestic operators.

3.1.2.8 *Switzerland*

GM(O)-free labelling in Switzerland is based on the 'Ordinance of 23 November 2005 on genetically modified food'. Negative labelling is voluntary in Switzerland, but like in the Netherlands it is subject to very strict rules. This labelling is not related only to the organisms from which the product is derived, but also refers to the entire manufacturing process.

Products may not be labelled as 'GM(O)-free' if they are manufactured either 'from' GMOs or 'with' GMOs. Thus, in addition to excluding ingredients obtained from GMOs, operators must not use any GM 'auxiliary' substances (e.g. enzymes or other additives) for food manufacture or agricultural production. As in the Netherlands, an exception is allowed for the use of veterinary medicines produced from modern biotechnology when a non-GM alternative is unavailable.

3.1.2.9 *Legislation under development - Greece, Luxembourg and Croatia*

The questionnaire responses for this study indicate that facilitative GM(O)-free legislation is in preparation in Greece (Agro 7), Luxembourg and Croatia. In Greece, the AGRO 7 standard will set specifications for food production from animals and refers specifically to milk, meat, eggs and aquaculture, but not to processed materials from animals or food (such as cold cuts). According to AGROCERT, the AGRO7 logo may be used on these products, followed by the words: 'without GM feed'. Additional information on the potential specification of the legislation in Luxembourg and Croatia is not available.

3.1.3 Prohibitive rules: Belgium and Sweden

This section summarises the legislative basis, rationale and historical context for prohibitive rules on the use of GM(O)-free labelling in EU Member States. Such rules are in place in Belgium and Sweden. Table 3.3 shows the title of the relevant legislation in each country and the year(s) when it was developed and amended.

Table 3.3 Prohibitive rules - overview

Country	Rules (year)	Title
BE	(guidelines 2004, revised 2010)	'Guide to the application of the regulation on GMOs' [*Guide d'application de la réglementation relative aux OGM*]
SE	2004 (guidelines 2004)	National Food Agency regulation on labelling and presentation of food (LIVSFS 2004:27), Article 5a

3.1.3.2 *Sweden*

Sweden has strict rules prohibiting the use of GM(O)-free labelling and marketing. The background for this ruling is that the labelling should include only the minimum information necessary to allow consumers to make an informed decision. An indication of 'free' can only be attributed to nutritional and allergenic ingredients (such as gluten or nuts). If all similar products have the same characteristics it is considered misleading to claim that a product is 'free from…' or 'without…'.

The Swedish legislative system is built on the subsidiarity principle such that the Swedish food regulation complements EU regulations (SFS 2006:804). The regulation establishes areas of responsibility for different authorities and gives the National Food Authority the right to publish regulations. The relevant regulation for GM(O)-free labelling is the National Food Agency regulation on labelling and presentation of food (LIVSFS 2004:27). Article 5a in the regulation specifies that:

'*Labelling cannot mislead the customer in a significant way, especially regarding the origin, processing or production methods used or by claiming a product to have special characteristics while it has the same characteristics as similar products'* (unofficial translation).[14]

While the regulation itself does not refer to GM(O)-free labelling, guidelines for the regulation produced by the competent authority mention cooking oil as a specific example of misleading 'free-from' labelling since any 'deliberate contamination by GMOs' must be labelled in accordance with the EU regulation.[15] All other products are by definition similar and may not carry a label suggesting a difference.

Labelling is considered important for engendering consumer trust regarding food products in Sweden. The objective of the Swedish regulation is to standardise the labelling of food belonging to the same product category. The labelling aim is primarily to provide the consumer with necessary information about the food so that the consumer can make an informed decision at the time of the purchase.

3.1.3.3 Belgium

Belgium has set out guidelines prohibiting labels for GM(O)-free products that are similar to those in place in Sweden. The use of negative labelling, including terms such as 'non-GMO', 'GMO-free' or 'GMO controlled' is not allowed because they would be considered misleading under Article 4 of the Royal Decree of 17 April 1980 on food advertising. In effect, negative labeling statements of this type mislead the consumer because they imply that the product has special features that similar food whose label contains no mention of GMOs does not. It is also considered both technically (via detection methods) and practically impossible to claim that a product does not contain GMOs since it would mean that each foodstuff was controlled for the presence of all existing GMOs (both authorized and non-authorized).

3.1.4 No action by government

Eighteen Member States have not become directly involved in GM(O)-free labelling schemes. The official position and rationale for this approach is outlined below for two case study countries, Italy and the United Kingdom:

- **Italy**: The Italian government does not have an official position on GM(O)-free labelling, leaving Italian regions free to develop their own positions. The Italian Corte di Cassazione (Court of Cassation) has argued that European law already addresses the necessary issues, including positive labelling of GM products and organic production and labelling, which includes prohibitions on the use of GMOs. In this context, the regions, provinces and municipalities adhering to the Conference of Italian Regions and Autonomous Provinces have declared themselves 'GM(O)-free' for many years.
- **United Kingdom**: One of the main goals of the UK Food Standards Agency (FSA) is to ensure consumer choice. In this context, the FSA argues that introducing a GM(O)-free

[14] LIVSFS 2004:27 Article 5a. Original text: "Märkning får inte vara sådan att den på ett avgörande sätt skulle kunna vilseleda köparna, särskilt med avseende på livsmedlets ursprung, tillverknings- eller produktionsmetod eller genom att antyda att ett livsmedel har speciella egenskaper då i själva verket alla liknande livsmedel har sådana egenskaper"

[15] Swedish National Food Agency (Livsmedelsverket) (2008) 'Guidance to the NFA provisions (LIVSFS 2004: 27) on food labelling and marketing' [*Vägledning till Livsmedelsverkets föreskrifter (LIVSFS 2004:27) om märkning och presentation av livsmedel*], http://www.slv.se/upload/dokument/livsmedelsforetag/vagledningar/vagledning_markning.pdf.

label may cause confusion where positively labelled products, negatively labelled products and unlabelled products are all available. If a harmonised GM(O)-free scheme was to be introduced, the policy position in the UK is that it should represent products that are completely GM(O)-free, with no GM allowances or threshold levels for GM ingredients.[16]

Both explicit labels and non-GM supply chain requirements without labels are in use in both countries. They are described in greater detail in the following sections.

3.2 Private operator-led Type I schemes: explicit GM(O)-free labelling rules and guidelines

This section summarises the rationale and historical context, where available, for the development of GM(O)-free labelling schemes by private operators. Five of the most widely used such labels are discussed in Table 3.4. As with national government positions on GM(O)-free labels, a variety or motivations have led private operators to develop such labels for their products (Personal communication with representatives from Carrefour, Auchan COOP Italia, Loué and IKC UM):

- **Providing consumers with informed choice** by introducing a GM(O)-free label for animal products because positive labelling is currently not required under EU law for these products; this is similar to one of the motivations behind regulation in Austria and Germany.
- **Recognising consumer's negative views on the use of biotechnology in food products**.
- A belief that the use of **GM feed is incompatible with high quality animal products**.
- Because **the national government did not take action on this issue** and there was felt to be both **consumer demand** and **producer and supplier interest** in having such labelling.

Evidence collected in this study shows that GM(O)-free indications are present on a variety of products in Austria, France, Italy, the Netherlands, Slovenia, Sweden and the United Kingdom (Table 3.4). These schemes are run by producers, manufacturers and retailers. Information on these other labels is provided in the sections that follow.

16 Per comms. UK Government Agency

Table 3.4 Private operator-led Type I schemes: context and rationale for scheme development

Operator	Context and rationale for GM(O)-free label development
Carrefour (France)	Carrefour is one of the largest food retailers in France and in October 2010 launched a 'non-GM' label: 'Nourri sans OGM guaranti à 99,1%' ('Fed with non-GM feed, guaranteed at 99,1%') that was restricted to Carrefour's own-branded products. The label was introduced ten years after a traceable 'non-GM' feed supply chain was established by the retailer (specifically for non-GM soy meal). The stated rationale for setting up a non-GM supply chain and GM(O)-free label was the firm's belief in consumer choice and a desire to increase customers' understanding of the products they consume and thus increase their confidence in those products, particularly for food products from animals fed on non-GM feed. Explicit labelling of food products that allows customers to distinguish GM from non-GM products easily, and immediately, has been a long-term goal of the retailer.
COOP Italia (Italy)	The COOP Italia scheme for labelling GM(O)-free animal products was prompted by consumers' negative attitudes towards the use of biotechnologies in food products. A COOP Italia survey showed that consumers are more aware of the presence of GMOs in food products directly related to raw materials, as in the case of animal products.
Heumilch ('hay milk') (Austria)	'Heumilch' milk products are produced by cows fed on grass, hay and some cereals in winter. Neither soya nor silage nor any additives are used as feed ingredients. All members of the ARGE Heumilch (the association of farmers producing hay milk) are also members of the ARGE Gentechnik-frei. The GM(O)-free label is not used on the packaging of all hay milk products, although most include at least some indication that the product is GM(O)-free.
IKC UM (Slovenia)	A private GM(O)-free quality scheme has been developed in Slovenia by the Institute for Inspection and Certification, University of Maribor (IKC UM), which is the accredited certification body for organic, integrated and other quality production schemes. The Slovenian Ministry for Agriculture is responsible for recognising the standard and ensuring that there is no conflict with EU law. The certification body for GM(O)-free labelling in Austria assisted IKC UM in preparing the standard and providing training and other expertise. The scheme has been in operation since September 2011. The rationale for its development by IKC UM was the national government's lack of interest in creating such a scheme, consumer demand for GM(O)-free certification from Slovenian producers and suppliers, and expressions of interest in GM(O)-free certification from large Slovenian dairy producers.[17]
Loué Poultry (France)	The Loué Poultry brand was established around 50 years ago and in 1996 was given the provenance label Indication Géographique Protégée (IGP). It also carries a *Label Rouge* (see section 3.10.3.3). In 1999 Loué decided that GM feed was incompatible with high quality poultry produce and put in place a supply chain allowing complete traceability and control over non-GM feed. This was coupled with an understanding that consumers did not want to buy food products produced with the use of GMOs. In June 2009 Loué launched a label after the National Consumer Council released rules for voluntary labelling of non-GM fed animals.
UNI[18] working group (Italy)	Several Italian organisations, including the farmers' organization 'Coldiretti', participate in a UNI working group, whose task is to study, develop, approve and publish voluntary standards for the definition of minimum requirements for a 'GM(O)-free' declaration.

[17] Information on the GM(O)-free labelling scheme was provided by a representative of IKC UM (personal email correspondence, ICF GHK and IKC UM, various dates, October and November 2012).

[18] Italian National Unification Body (Ente Nazionale Italiano di Unificazione)

3.3 Type II schemes: 'GM(O)-free' is one attribute of a quality label

Quality schemes that include a 'GM(O)-free' requirement alongside one or more other product attributes operate in many European countries. The organic label applies across the EU and the organic rules prohibit products from carrying an organic label if GMOs have been used in their production (detailed below). In France, the production rules for some Appellation d'Origine Contrôlée (AOC) cheeses include a GM(O)-free requirement. Regional quality schemes in France, Germany, and Italy,[19] eco-labels in Sweden, and the ProTerra label in Switzerland also include this requirement.

3.3.1 Organic labels

Regulation (EC) No 834/2007 on organic production and labelling of organic products prohibits the use of GMOs in organic production amongst other production requirements. The primary requirements for excluding GMOs in organic production are outlined in the box below.

EU organic requirements

Regulation (EC) No 834/2007 on organic production and labelling of organic products requires that:

- Organic production shall be based on methods that exclude the use of GMOs and products produced from or by GMOs with the exception of **veterinary medicinal products** (Article 4 (a)(iii)).
- As a general principle, in organic production **processing aids** should be used to a minimum extent and only in case of essential technological need or for particular nutritional purposes (Article 6 (b)).
- **GMOs and products produced from or by GMOs** shall not be used as food, feed, processing aids, plant protection products, fertilisers, soil conditioners, seeds, vegetative propagating material, micro-organisms or animals (Article 9.1).

All organic products in the EU are therefore 'GM(O)-free'. Consultations undertaken for this study suggest that where 'GM(O)-free' appears on organic products, the EU rules for adventitious or technically unavoidable GM presence and other rules for excluding GMOs are applied– that is, national schemes do not generally apply rules stricter than those set down in EU law. Nonetheless, the following two examples demonstrate how organic labelling schemes may apply stricter rules:

- The Bio (Organic) scheme developed by the German Ministry of Food, Agriculture and Consumer Protection ('Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz', BMELV) signals stricter standards of environmental protection, improved husbandry standards and the fact that a product is GM(O)-free. The GM(O)-free standards/specifications built into the scheme match those specified in the German legislation (EgGentechDurchfGesetz) for the national GM(O)-free scheme, except for the threshold level for adventitious presence, which is higher under the national scheme (<0.1% under the national GM(O)-free scheme, compared to <0.9% under EU organic rules).
- The Bio Cohérence scheme in France is a label for organic products whose requirements are more specific and stringent than those applied under 'regular' organic production. Additional details on this scheme could not be obtained.
- In Wallonia, Belgium, 'Bio' labels can be found on pork, beef and chicken. The non-GM specifications applied by retailers and producers vary; some may be stricter than the EU organic rules.

[19] Type II schemes were identified for products protected by geographic indications and designations of origin in Latvia, although no further information was collected on their specification.

3.3.2 Designation of origin and geographic indications

The EU legislation governing the award of protected food names sets no GM(O)-free requirements.[20] Rather, the law serves as a guide for applicants to determine the eligibility of their products for an indication, emphasising the proof required to claim a specific unique quality or qualities intrinsic in the product or the traditional methodology in producing the product. This does not prohibit an applicant from stating that their animal feed is GM(O)-free nor prevent any applicant from aligning their methods with GM(O)-free principles. Accordingly:

- In France some cheeses that are labelled Appellation d'Origine Contrôlée (AOC) are required to have been made with milk from animals fed on non-GM feed (<0.9%) and with the use of non-GM microorganisms for fermentation.
- In Sweden all Protected Designation of Origin (PDO) schemes are considered to be 'GM(O)-free; national guidelines are in place to facilitate GM(O)-free supply chains (see section 3.10.4.1).

3.3.3 Regional labels

Some regional quality labelling schemes also include or are planning to include 'GM(O)-free' criteria for their application:

- In Germany, some regional quality schemes are considering use of the GM(O)-free criterion for their products. The quality label scheme of the federal state of Hesse – 'Geprüfte Qualität – HESSEN' has special criteria for the claim GM(O)-free which are stricter than the national rules. For example, feed must be GM(O)-free for the entire life of the animal for some products, including for poultry, eggs and pork products. The 'Gesicherte Qualität – Baden-Württemberg' criteria have been revised and from 1 January 2015 all food under this scheme must meet the GM(O)-free requirements of the official national scheme, although GM(O)-free labelling will remain voluntary. In 2012 the Bavarian parliament rejected a proposal to extend the criteria of the regional quality label ('Geprüfte Qualität – Bayern') to exclude the use of GMOs (Bayerischer Landtag 2012).
- In the Poitou Charentes region of France, farmers and collectives have set up a 'Signé Poitou-Charentes' label[21] – a voluntary label for food products that meet specific requirements. Défis Ruraux is an association of food producers in Normandy engaged in more sustainable agriculture. Amongst other things, the association helps farmers to procure non-GM feed.
- Some Italian regions have quality labelling schemes that include GM(O)-free criteria (e.g. the Qualita' delle Marche (QM) label). These apply to both raw and processed foods.

3.3.4 Eco-labels

In Sweden, all 'eco-label' schemes have GM(O)-free policies, including:

- Svensk Sigil (Swedish Label) which certifies vegetables and animal products; the certification includes third party monitoring and verification.
- KRAV, which is the best-known eco-label, is applied to more than >5500 products and used by 3000 farmers and 450 processors and traders.

In Switzerland, the ProTerra labelling scheme has GM(O)-free requirements, and the words 'non GMO' appear alongside 'sustainability' on the logo.

[20] Council Regulation (EC) No 510/2006

[21] Signe Poitou-Charentes les guaranties, 23 novembre 2011, IRQUA

3.3.5 Other quality labels

GM(O)-free is one attribute of a number of quality labelling schemes in Austria, one of which is the AMA scheme. The Agrarmarkt Austria Marketing (AMA) guidelines were developed in collaboration with representatives of agriculture and business. The AMA, one of the main agricultural institutions in Austria, is responsible for the licensing system. The AMA Seal of Approval is an indication of quality and the country of origin; the consumer can be assured that AMA products are high quality goods, with a country of origin which is easily traceable.

At producer level, there are GM(O)-free guidelines for rearing cows for milk and meat production and for sheep and goats, laying hens and for the production of fruits, vegetables and potatoes. The guidelines refer to the Austrian Codex guidelines and recommend the use of the ARGE label. Discussions are on-going as to whether GM(O)-free production should be a requirement for all products that are labelled with the AMA label rather than being a voluntary element of the scheme.[22]

In Germany, the Pro Planet scheme is based on the national legislation and rules set by the REWE Group, which comprises retailers like REWE, Penny-Markt, toom and others. The words ‘ohne Gentechnik’ are depicted below the logo where REWE wants to communicate the GM(O)-free status of a product. The motivation to introduce the label arose from the desire to supply ‘sustainable food at fair prices’ to consumers. The standards are the same as those of the national GMO-free label.

Additionally:

- In Switzerland, avoidance of GMOs is one of the criteria in ‘Suisse Garantie’ labelling.
- In France, the Label Rouge indicates that products have certain organoleptic properties (i.e. qualities that stimulate the sense organs) which give them a superior taste. The GM(O)-free requirement is found in the specification for many Label Rouge products, but is not compulsory and depends on the individual product.

3.4 Type III schemes: ‘GM(O)-free’ is a supply chain requirement, but no labels appear on product packages

Table 3.5 provides information on the non-GM supply chain requirements identified in different Member States. Type III approaches to non-GM supply chains are particularly prevalent in the United Kingdom. Details of the UK situation are provided in the box below.

Type III approaches to non-GM supply chains in the United Kingdom

The British Retail Consortium and Food and Drink Federation issued a joint identity-preservation standard for sourcing non-GM soya and maize which does not support ‘GM(O)-free’ claims, but is a basis for ‘best practice’ (<0.9%). The British Poultry Council (BPC) also informed major retailers of its position that it would use non-GM feed in poultry and egg production. This position was not stipulated on any label, nor advertised to consumers.

UK supermarkets eliminated GM ingredients (as far as possible) in their own branded products in the 1990s. This included the use of non-GM feed for animals used in meat production. Retailers did not actively communicate this position to customers (although their positions could be found by searching company websites). Retailers consulted for this study indicated that this approach was taken to avoid providing consumers with an absolute guarantee that products are ‘GM(O)-free’.

Supplies of GM(O)-free soya have become harder to guarantee and the sector has attempted to retract their non-GM policy with British retailers. British supermarket chain Asda stated in 2010 that they would allow their poultry producers to source GM feed. Morrisons announced a similar change in the spring of 2012. Sainsbury’s, Tesco, The Cooperative and Marks and Spencer also changed their policy in April 2013, leaving Waitrose as the only major supermarket to maintain a non-GM poultry meat and egg production policy.

[22] Association of Dairy Industry, Helmut Petschar, Telephone Interview (08/10/2012)

Table 3.5 Type III non-GM supply chains: context and rationale for scheme development

Country	Scheme Name	Description
DE	Lidl	GM-free is one element of a 'package' of purchasing practices that forms part of the 'commitment' or 'offer' to the consumer. In some regions of Germany, Lidl provides GMO-free milk without declaring it (personal communication, Lidl representative). A regional label is used in some cases, for example in Bavaria, but not in every case. Baby food is also typically made from non-GM inputs but this is not explicitly mentioned on the package. Lidl's GM(O)-free commitment is not communicated to consumers because Lidl does not want consumers to avoid its other products under the assumption that they are *not* GMO-free (personal communication Lidl representative).
IT	COOP Italia (all products)	COOP Italia has declared itself GM(O)-free since 1997. Today all products are 'GM(O)-free' by corporate policy. There are no labels, but the products are marketed as 'GM(O)-free' (personal communication, COOP representative).
	Coldiretti	All 'Coldiretti' products (farmers' markets and retail products) are promoted under the name of 'Campagna Amica' as 'GMO-free', but do not have a label.
	Amadori Fileni	Private voluntary standards are used for these poultry products for non-GM maize and soy.
	Latte Milano & Trentingrana	These milk (Latte Milano) and cheese (Trentingrana) producers feed their animals using non-GM maize.
NL	Some Dutch producers	Although they do not use the 'bereid onder gentechniek' label, several producers claim to be 'gentechvrij' ('GMO-free') in their general communication.
	Rondeel	Restaurants can indicate that they do not serve food produced with or from GMOs. Rondeel, an egg producer operating to high animal welfare standards, claims the use of non-GM Pro Terra soya feed (Rondeel, 2013).
SE	LRF	The Federation of Swedish Farmers (LRF) strongly opposes GMOs on the basis of the precautionary principle. Almost 100% of imported feed used by LRF farmers is non-GM.
	Scan	Scan is Sweden's largest meat producer. Historically, Scan did not accept any pork products produced from pigs that had been fed with GM feed. In 2006, Scan changed its policy following complaints from suppliers that non-GM feed was more expensive. In 2011, Scan renewed its non-GM feed policy following consumer criticism and requests for GM(O)-free ham for Christmas.
	Arla	Arla is a producer and distributer of dairy products that has adopted a GM(O)-free policy for its products
	Svenk Mjölk	Svenk Mjölk (Swedish Dairy Association) has adopted a non-GM policy for its products
UK	Large supermarkets/ manufacturers	Large supermarkets and manufacturers' own brand products (including meat, fish, chicken, eggs and milk) have maintained non-GM supply chains since 1999. This has been true of Marks & Spencer, Tesco, Sainsbury's, Iceland, Morrison's, Waitrose and Asda but all of these except Waitrose decided to allow GM feed for poultry products in 2012 and 2013.

3.5 Labelling rules

3.5.1 Public, Type I labelling approaches

A wide range of labelling approaches has been taken at Member State level and by private operators:

- In France and the Netherlands, national legislation specifies the particular words that may be used to identify a product as 'GM(O)-free', but does not specify a logo;
- In Austria and Germany, national legislation sets out both the words that may be used and provides for a non-prescriptive logo or logos; and
- In all four countries, private operators may use their own logo, if they adhere to the national rules.

Table 3.7 provides the wording that may be used according to MS legislation and an image of the harmonised, voluntary logo where one is provided as well as commentary on their use.

The French labelling decree makes a number of distinctions in the wording that may be used on product packages. The box below describes the approach taken in France.

GM(O)-free labelling distinctions in France

The French GM(O)-free labelling decree makes a number of distinctions related to the wording that may be applied to such products. Permitted labels consist of the wording highlighted in the first column of Table 3.6 below, which is to be included as part of the ingredients list or as a footnote.

The specific packaging requirements are as follows:

- *For pre-packed food products*: relevant wording should be included within the ingredients list immediately after the relevant ingredient or as a footnote at the end of the list. Wording must be in the same font, font size and colour as the other ingredients on the list.
- *For non-pre-packed foods*: relevant wording should be placed in an obvious place using permanent markings after the mention of the relevant ingredient, on a label placed on each food product or product lot, provided the lot contains products with the same labelling requirements.

Table 3.6 Food product labelling distinctions in France under Decret no 2012-128

Label	Description	Product type covered
GMO-free	Plants and ingredients of plant origin made from raw material containing less than 0.1 per cent GMO*	Vegetable origin
Fed on non-GMO feed (<0.1 per cent)	Unprocessed ingredients of animal origin obtained from animals fed on GMO-free feed*	Animal origin
Produced from animals fed on non-GMO feed (<0.1 per cent)	Processed ingredients of animal origin, including eggs and milk, obtained from animals fed on GMO-free feed*	Animal origin
Fed on non-GMO feed (<0.9 per cent)	Unprocessed ingredients of animal origin obtained from animals fed on feed not subject to [EU] labelling requirements	Animal origin
Produced from animals fed on non-GMO feed (<0.9 per cent)	Processed ingredients of animal origin, including eggs and milk, obtained from animals fed on feed not subject to [EU] labelling requirements	Animal origin
GMO-free within a radius of 3km	Honey and other products relating to apiculture	Bee-derived

** On condition that this presence is fortuitous and technically unavoidable.*

Table 3.7 Wording and logos to identify a product as 'GM(O)-free' specified in national legislation

MS	Wording allowed	Logos	Commentary
AT	Ohne Gentechnik Hergestellt Gentechnikfrei Erzeugt Gentechnikfrei GVO-frei Ohne Gentechnik Ohne Verwendung von Gentechnik Geeignet zur Herstellung gentechnik freier Lebensmittel	OHNE gen TECHNIK HERGESTELLT gen TECHNIK FREI ERZEUGT	Operators may use different wording formulations, but in practice 'ohne gentechnik hergestellt' and 'gentechnikfrei erzeugt' and the corresponding voluntary logos are used. For feed, only one claim is admitted: 'geeignet zur Herstellung gentechnik freier Lebensmittel' ('applicable to the production of GMO-free food').
DE	Ohne Gentechnik – 'without genetic engineering'	Ohne Gentechnik	There are 15 logos in use alongside the official logo. Examples of these are set out in Table 3.8.
FR	sans OGM nourri sans OGM (<0,1%) issu d'animaux nourris sans OGM (<0,1%) nourri sans OGM (<0,9 %) issu d'animaux nourri sans OGM (<0,9 %) sans OGM dans un rayon de 3 km	No logo specified	The decree makes several distinctions concerning the labelling of food products that are 'free from genetically modified organisms'. These are highlighted in Table 3.6 below.
FR	Fed on non-GMO feed (<0.9 per cent) in conformity with the regulation on organic production ('nourri sans OGM (<0,9 %) conformément à la réglementation relative à la production biologique') Produced from animals fed on non-GMO feed (<0.9 per cent) in conformity with the regulation on organic production ('issu d'animaux nourris sans OGM (<0,9 %) conformément à la réglementation relative à la production biologique')	No logo specified	The decree makes several distinctions concerning the labelling of food products that are 'free from genetically modified organisms'. These are highlighted in Table 3.6 below.
NL	bereid zonder gentechniek – 'prepared without gene technology'	No logo specified	There is only one product carrying the *bereid zonder gentechniek* label; no logo is used on the product.
CH	'ottenuto senza ricorso alla tecnologia genetica' / 'ohne Gentechnik hergestellt' / 'produit sans recours au génie génétique' ['Obtained without the use of gene technology/genetic engineering']	No logo specified	Products characterized as 'organic' may not display the label 'obtained without the use of genetic engineering'. It is possible to provide a reference on the label to the legal provisions in force.

3.5.2 Private, Type I labelling approaches

A range of labelling approaches has also been taken by private operators. The wording and logos currently in use by these operators are provided in Table 3.8. In summary:

- In Germany, 15 operator-designated (own design) logos are currently used alongside the VLOG logo, but the products must comply with national requirements in order to use the 'ohne Gentechnik' indication.
- In Italy, no logos are used to designate GM(O)-free products, but a range of different wording is used.
- In Slovenia, the Institute for Inspection and Certification, University of Maribor (IKC UM) has developed wording and a designated logo for GM(O)-free products;
- In the UK, a number of products carry wording that indicates they are 'GM(O)-free'. For example, the words 'GM free' appear on a number of different organic products; and
- Although GM(O)-free labelling is illegal in Sweden, this type of labelling has been found on some products. A study conducted in 2009 found that out of 76 companies, 20 were using the words 'free from GMO'. GM(O)-free statements were often used in combination with labels declaring organic production and mainly used for soya milk and canned corn.

In France, two logos have been historically used by private operators (Carrefour and Loué). Both were in use before the French legislation came into effect. All Loué products are GMO-free and labelled as such, including their organic range. Both Carrefour and Loué originally chose wording that would represent a 'positive' image to consumers (Nourri sans OGM, garanti à 99.1%), rather than what they consider to be a label highlighting contamination levels. They have since changed their labels to conform to the new legislation. For example, Carrefour has adapted its logo to conform to the new legislation (see Figure 3.1).

Figure 3.1 The Carrefour 'Nourri sans OGM' logo - prior to (left-hand logo) and from October 2012 (right-hand logo)



Sweet corn and beansprouts produced for human consumption, rather than as animal feed, also use a GM(O)-free indication on their packaging in France, despite the fact that they are unrelated to the GM varieties that are used as animal feed. A specific approach has been taken for these products as detailed in the box below.

GM(O)-free labelling for sweet corn and beansprouts

Genetically modified varieties of maize (maïs) and soy (soja) are used as animal feed in France. Although these two crop varieties are unrelated to the sweet corn and beansprouts (called pousses de soja in French) produced for human consumption, the nomenclature used was confusing for consumers. Sweet corn and beansprout producers and distributors claimed declining sales as a result. In 2004 the following labels were permitted for use on these two products respectively[23]:

- '*le maïs doux est sans OGM, conformément à la réglementation*' (i.e. 'sweet corn is non-GM in conformity with legislation'), and
- 'les pousses de haricot Mungo (pousses de soja) sont sans OGM conformément à la réglementation' (i.e. 'mungo beansprouts are non-GM in conformity with legislation').

The labelling was authorised despite the fact that no GM alternatives exist for these plant products.

In the UK, a number of products have been identified which have a 'GM(O)-free' indication on the package. For example, Marigold products include the label wording 'contains no genetically modified material'. Recently, GM(O)-free certification has been introduced in the UK for food products that may carry the German 'Ohne Gentechnik' mark. The mark may be used both for export to Germany and for domestic products (FarmingUK, 2013).

[23] DGCCRF, (2004) 'Les OGM et leurs produits dérivés doivent-ils être étiquetés?'

Table 3.8 Wording and logos to identify products as 'GM(O)-free' used by private operators

MS	Wording	Logos
DE	[Same as set out in national legislation]	15 other logos in use by private operators in addition to the national logo, for example:
FR	[Same as set out in national legislation]	Carrefour
SI	**Institute for Inspection and Certification, University of Maribor (IKC UM)**: *Brez GSO* (‘Non-GMO’); *Produced without GMOs*	
IT	**In general:** non OGM, alimentazione NO OGM, prodotto con latte ottenuto da alimentazione NON OGM, OGM free **UNI Working Group:** Food products: *non-OGM*; Animal products: *alimentazione non OGM* (‘GMO-free feeding’); Feed: *conforme alla norma UNI…* (‘in conformity with UNI standard’) **COOP Italia:** non-OGM (animal products)	[No logos known to be used]

3.5.3 Public, Type II labelling approaches

Harmonised EU labelling rules and a logo have been established for organic products. National organic logos can still be displayed alongside the EU logo. According to the general principles of the EU Regulation on organic production, the use of GMOs is incompatible with organic production, and products that must include positive GM labelling cannot carry the EU organic logo. But EU organic labelling rules do not foresee the explicit indication that the product is 'GM(O)-free' (or its prohibition). In the UK, for example, some organic products also include the wording 'GM free', such as Riverford Farm milk and Jordan's cereals.

3.5.4 Private, Type II labelling approaches

Type II labels refer to a range of quality attributes. The logos used on Type II products identified in this study are illustrated in Table 3.9.

Table 3.9 Logos used by private operators to identify quality products where 'GM(O)-free' is a requirement for its use

MS	Private operator	Logos
DE	Pro Planet	
DE	Bio (Organic)	
AT	AMA-label	
FR	Signé Poitou-Charentes	
FR	Défis Ruraux (Haute Normandie) logo (which includes the Porc des Chaumières logo)	

MS	Private operator	Logos
FR	Label Rouge	
FR	Appellation d'origine contrôlée (AOC)	
FR	Bio Cohérence	

3.5.5 Private, Type III non-GM supply chain requirements

While Type III schemes do not include labels, marketing materials may contain reference to the ‘GM(O)-free’ status of the supply chain or products. For example, in the Netherlands, several producers claim to be ‘gentechvrij’ (i.e. ‘GMO-free’) in their general communications. Bionext, the Dutch organisation for sustainable organic agriculture and food, has some information available in a leaflet that states, ‘[o]rganic food is naturally ‘GMO-free’ and encourages people to create ‘GMO-free zones’. Figure 3.2 illustrates how some Dutch operators market ‘gentechvrij’ products.

Figure 3.2 Organic producers’ marketing material in the Netherlands – ‘gentechvrij’ (‘GMO-free’)



In other Member States, such as the UK and Sweden, manufacturers and retailers maintain non-GM supply chains for their products, as discussed in section 3.4. Where product labels themselves do not make ‘GM(O)-free’ claims, websites may provide information on the policy.

In Sweden, national guidelines have been established to facilitate non-GM supply chains, including the type of controls and documentation that would be considered acceptable for companies which, according to their GM policy, claim not to sell products produced or processed with GMOs (see section 3.10.4.1).

3.6 Product scope

3.6.1 Public, Type I product scope

National legislation in Austria, France, Germany and the Netherlands allows for any eligible product to be labelled as 'GM(O)-free' so long as it meets the national rules. Table 3.10 summarises the product categories allowed in these four Member States.

Table 3.10 Product scope

Product category	Applicability			
	AT	DE	FR	NL
Vegetables	✓	✓	✓	✓
Oils / fats	✓	✓	✓	✓
Meat	✓	✓	✓	✓
Processed meat products	✓	✓	✓	✓
Eggs	✓	✓	✓	✓
Milk	✓	✓	✓	✓
Other dairy products	✓	✓	✓	✓
Other animal products	✓	✓	✓	✓

** Products from hunting and fishing of wild animals are not included in the scope.*

Nonetheless, the scope for processed products to carry a GM(O)-free label may depend on the proportion of a particular ingredient in the processed product. For example, in France, GM(O)-free labelling can only be used for food products made up of several ingredients where the non-GM ingredient makes up at least 95 per cent of the total weight of the product and where the other ingredients are not subject to these labelling requirements (salt and water are not included in the product weight).

Agreement on this figure was reached after considerable discussion amongst stakeholders during the consultative process prior to the publication of the decree.[24] Many retailers favour reducing the threshold level above which an ingredient may be labelled so that a greater percentage of products which contain non-GM ingredients may be eligible for GM(O)-free labelling. The case has been put forward to allow certain ingredients to be labelled even if they are not a major constituent of the product because they have a GM alternative (such as soy), so that the consumer may have more information about the food product.

On the other hand some stakeholders from the food industry in France would prefer that ingredients in 'transformed' food products, or products containing several ingredients are not permitted to be labelled as GM(O)-free. The government position is that a lower threshold level might lead to consumers being misled if a label referring to a minor ingredient is highlighted on the packaging.

In Austria, there have also been discussions about whether it should be possible to label more processed products as GM(O)-free so long as it can be guaranteed that the main part of the product is GM(O)-free. For instance, in the case of marinated barbecue meat, a guarantee that the meat itself has been produced without GMOs is relatively straightforward. But the marinade itself is normally composed of many different ingredients for which it is

[24] Communication with DGCCRF, 24 September 2012

more difficult to provide a 'GM(O)-free' guarantee. Nonetheless, having the possibility to use a GM(O)-free label that only refers to a certain component of processed product could be valuable to consumers (personal communication, representatives from Faber, ARGE).

3.6.2 Private, Type I, II and III product scope

Private operators may also allow any product to be labelled as 'GM(O)-free' where it complies with EU and national labelling rules, but in practice some operators restrict GM(O)-free labelling to products from a particular animal species or of a particular type or extent of processing. Table 3.11 shows the product scope for private operator schemes covered by this study. For example:

- The Brez GSO label in Slovenia covers plant and animal products (meat, milk and eggs), aquaculture and apiculture.
- The COOP Italia scheme covers a wide and heterogeneous range of processed products, including those that are free from both GM soybean and maize ingredients. It also covers animal products including poultry, pork, beef, farmed fish, eggs, milk, and some cold cuts and cheeses. Although many products belong to this scheme, many other goods prepared with animal products do not. Ingredients like meat stuffing are considered to be too difficult to segregate as GM(O)-free.
- The UNI working group norm applies to food and feed products and covers animal products fed on non-GM feed.
- Carrefour's scheme covers only food products from animals including meat (veal, pork, and poultry), eggs and farmed fish. It does not cover milk or dairy products because Carrefour views the milk supply chain as complex and difficult to trace.
- The Loué scheme covers poultry meat and eggs.
- All sweet corn produced in France carries a GM(O)-free label.

Table 3.11 Product scope – Type I, II and III private operator-led schemes

Product category	Applicability by operator/organisation															
	Carrefour*	Loué	Auchan	Bio cohérence	Some FR AOC cheeses	Some Label Rouge	Signé Poitou Charentes	Défis Ruraux	UNI working group	COOP Italia	Hesse	Pro planet	Heumilch	Sainsbury's	Waitrose *	Most major Uk supermarkets *
Vegetables	×	×	×	✓	×	✓	✓	✓	✓	✓	×	×	×	×	×	×
Oils / fats	×	×	×	✓	×	✓	✓	✓	✓	✓	×	×	×	×	×	×
Meat	✓	✓ (poultry)	✓ (poultry, pork)	✓	×	✓	✓	✓	✓	✓	×	×	×	✓ (beef & pork)	✓	✓ (except poultry)
Processed meat products	✓ (ham)	×	×	✓	×	✓	✓	✓	✓	✓	×	×	×	?	✓	✓
Eggs	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	×	×	×	✓	×
Milk	×	×	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
Other dairy products	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	✓
Other animal products	✓ (farmed fish)	×	✓ (fish)	✓	×	✓	✓ (prawns)	✓	✓	✓ (farmed fish)	×	×	×	×	✓	✓

**Own-branded products only*

3.7 Threshold levels for adventitious or technically unavoidable GM presence

As the baseline evidence demonstrates, the threshold levels for GM presence used in the EU vary across two dimensions: the product scope and the threshold level used. There are three threshold limits set: <0.9%, <0.1% and <0.01% and three general categories of products to which the limits are applied: food, feed and seed.

Two uses of the <0.01% threshold level have been identified for seed. For the other two categories there is a mix of uses, such that <0.9% may be set for feed and/or food and <0.1% may be set for feed and/or food. There is variance in this practice across Member State and private operator schemes.

In very restrictive schemes, such as that in use in the Netherlands, 'zero' is the target but the threshold level is set at <0.1% due to analytical constraints. Nevertheless, the Dutch authorities do not use analytical methods in practice because there is only one 'GM(O)-free' product on the market which is verified through certification documents.

Additionally, in cases where prohibitive rules may be sought at EU level, 'zero' tolerance may be indicated in order to limit the use of 'GM(O)-free' labels as far as possible. Such an approach could not rely on analytic methods, but would require certification through supply chain documentation – a 'process' rather than a 'product' based approach to verification of conformity with the rules.

The rationale for setting these different threshold limits varies by scheme, including:

- Operators' abilities to comply with the limits (co-existence issues);
- Operators' costs to meet the requirements; and
- Operators' and/or Member State authorities' expectations and perceptions of consumer demand for restrictive requirements.

These rationales are bounded by analytic limits at one end (moving towards a '0.0%' limit) and EU law at the other (GM presence above 0.9% must carry a positive label).

3.7.1 Public, Type I threshold levels for adventitious or technically unavoidable GM presence

Member States have developed legislation and guidelines for 'GM(O)-free' production where adventitious or technically unavoidable authorised GM presence is below 0.9%. Table 3.12 illustrates the threshold levels set through Member State legislation, at either <0.1% or <0.9% for food and/or feed.

Table 3.12 Threshold levels set by MS for adventitious or technically unavoidable GM presence

Parameter	AT	CH	DE	FI	FR	NL
Food	<0.9%*	<0.9%	<0.1%	0.0%**	<0.1%	<0.1%***
Feed	<0.9%*	<0.9%	<0.9%	0.0%**	<0.1% and <0.9%	<0.1%***

** In practice, operators voluntarily adhere to a <0.1% threshold. Additional controls are carried out if there is GM contamination greater than 0.1%.*

*** The guidelines indicate that the GM material limit for adventitious or technically unavoidable presence is 0% (or the threshold limit).*

****This is the assumed threshold level although in practice the Dutch government does not use analytical methods because there are virtually no products carrying the label in the Netherlands.*

In Austria and Germany, the thresholds for feed (DE) and food and feed (AT) are defined according to regulation (EC) No 1829/2003 and 1830/2003 at 0.9 per cent with the provision that exceptions are permitted up to 0.9 per cent provided the exceptional presence is adventitious or/or technically unavoidable.

3.7.2 Private operator threshold levels for adventitious or technically unavoidable GM presence

Private operators have developed their own standards for 'GM(O)-free' production where adventitious or technically unavoidable authorised GM presence is below 0.9%. Table 3.13 illustrates the levels set by private operators for Type I schemes where these are known, at either <0.1% or <0.9%. In Italy, Accredia, the national accreditation organisation, has set a limit of <0.01% for seeds (maize and soy only). In France, the organic scheme Bio Coherence has also set a <0.01% threshold for raw materials. Schemes discussed elsewhere but not listed here meet the national rules for adventitious or technically unavoidable presence set out in the country in which they operate.

Table 3.13 Type I – threshold levels for adventitious or technically unavoidable GM presence set by private operators

Parameter	COOP Italia*	IKC UM	UNI working group (e.g. Colderetti)
Food	<0.1%	<0.9%	<0.1%
Feed	<0.9%	<0.9%	<0.9%

**Own-branded products only*

Thresholds set under Type II schemes are described in Table 3.14, where these are known.

Table 3.14 Type II – threshold levels for adventitious or technically unavoidable GM presence set by private operators

Parameter	Bio coherence*	Some FR AOC cheeses	Some Label Rouge	Signé Poitou Charentes	Défis Ruraux**	UK Soil Association***
Food	<0.1%	N/A	<0.9%	<0.9%	<0.9%	<0.1%
Feed	<0.1%	<0.9%	<0.9%	<0.9%	<0.9%	<0.1%

** <0.01% for raw materials*

*** The on-going objective is towards achieving a <0.1% threshold level*

**** The UK Soil Association has an identity preserved system for checking products at all stages of the supply chain. Where products are not tested throughout the supply chain, they are tested at the <0.1% threshold level. If GM ingredients are found in products, producers risk having organic status rescinded.*

In the UK, operators maintaining Type III schemes (non-GM supply chains) adhere to a <0.1% threshold where these are known. Most UK retailers require suppliers of own branded meat products to feed animals entirely on non-GM maize and soya (or other comparable non-GM feed) validated by the Exova system, which is the dominant verification systems for non-GM ingredients. With this system, non-GM maize and soya is guaranteed to a <0.1% threshold. This threshold level is also applied by Marks & Spencer's in-house verification system. Additional details on the UK verification systems for Type III schemes are provided in section 3.10.4.2.

3.8 Input specifications and exemptions

In Member States that wish to provide more opportunities to label products as 'GM(O)-free', exceptions are provided since operators would find it very difficult to ensure a supply chain that did not rely on one or more GM input. In the Netherlands, where a very strict approach is used, only one product is available on the market carrying the 'GM(O)-free' label.

3.8.1 Public, Type I input specifications and exemptions

The four national schemes that provide for facilitative 'GM(O)-free' labelling specifically exclude the use of all or most of these inputs. Table 3.15 illustrates the rules regarding inputs specified in the four national schemes in place in the EU, as well as the guidelines in Finland and the scheme operating in Switzerland.

Table 3.15 Input specifications

Parameter	AT	CH	DE	FI	FR	NL
Allows preparation aided by compounds or processing aids that contain or are derived from GMOs	×	×	×	×	×	×
Allows production* from animals that have been fed on GM feed	×	×	×	×	×	×
Allows production* from animals that have been fed on conventional feed that contains GM additives	×	×	×	×	×	×
Allows production* from animals that have been fed on GM feed that contains GM additives	×	×	×	×	×	×
Allows production* from animals treated with veterinary products produced with modern biotechnology	×	×	×	×	Does not specify	×

** including meat, dairy, eggs, etc.*

Finland and Switzerland do not allow any exceptions to these restrictions. The Netherlands allows for an exception where a non-GM veterinary product is unavailable. Austria, France and Germany provide exceptions in two further cases:

- First, where a non-GM alternative is not available for the use of compounds, processing aids, or feed additives; and
- Second, specifying minimum feeding times for animals fed on non-GM feed.

Table 3.16 illustrates the exceptions provided for each of these inputs.

Table 3.16 Exceptions

Exception	AT	CH	DE	FI	FR	NL
Use of GM veterinary pharmaceuticals where a non-GM alternative is not available	✓	✓	✓**	×	Does not specify	✓
Use of certain additives or enzymes where a non-GM alternative is not available	✓	×	✓	×	✓	×
Use of feed additives where a non-GM alternative is not available	×	×	✓**	×	✓	×
Allows a minimum time period during which animals are fed 'GM-free' feed before slaughter/production	✓	×	✓	×	✓	×

*** In Germany, GM feed additives are only allowed if they are produced by GMOs and do not require labelling under Regulation (EC) No 1829/2003 and 1830/2003. Similarly, veterinary pharmaceuticals are not covered by the 'Ohne Gentechnik' legislation as long as they do not need to be labelled under Regulation (EC) No 1829/2003 and 1830/2003. The need to prove the unavailability of alternatives for additives and veterinary pharmaceuticals was part of the legislation until 2008 but is no longer a requirement.*

3.8.2 Private, Type I input specifications and exemptions

The study team has obtained little information regarding the rules for use of these inputs or any exceptions by private operators. Interviews for this study found that:

- In Slovenia, exceptions are provided for the use of veterinary pharmaceuticals and vitamins in animal feed where a non-GM alternative is unavailable. Rules regarding the use of GM enzymes and other GM additives are applied according to the EU organic farming regulation (Regulation (EC) No 834/2007).
- For Loué products, non-GM additives and veterinary products are used to the extent possible, however Loué accepts certain genetically modified synthesised amino-acids which do not have a non-GM alternative.
- For Carrefour products, non-GM additives, enzymes and veterinary products are also used wherever possible, but some synthetic (GM) amino acids do not have substitutes and are allowed.

3.9 Minimum non-GM feeding times for animals

The baseline data demonstrate that where Member States have legislation, minimum non-GM feeding times for animals vary along three dimensions:

- The amount of time that animals must be fed on non-GM feed;
- The type of product/animal species covered; and
- The way in which the feeding time is framed (i.e. as the time from birth, the time from production/slaughter, or the total period of fattening during which non-GM feed must be used).

3.9.1 Public, Type I minimum non-GM feeding times

Member States have developed legislation and guidelines for non-GM feeding time requirements. The greatest variation in such requirements occurs in Member State legislation (Table 3.17), particularly for dairy animals:

- In Finland, the Netherlands and Switzerland, all animals must be fed on non-GM feed from birth.
- In Austria, the minimum non-GM feeding time for dairy animals before milk production is two weeks, while Germany requires three months, and France six months.
- For poultry, both Austria and France require non-GM feed from three days from birth. In Germany the requirement is non-GM feed 10 weeks before slaughter.
- Pigs must be fed on non-GM feed for approximately 4.5 months before slaughter in France (i.e. three quarters of their lifespan), four months before slaughter in Germany and for the total period of fattening in Austria.
- The requirements are more consistent for egg production. Austria, France and Germany all require non-GM feed for six weeks before egg production.
- Cattle must be fed non-GM feed for 12 months before slaughter in Austria, France and Germany. Additional rules apply in these Member States for small ruminants, horses, and fish.

In Austria, minimum feeding times are transitory provisions to 2017, after which all animals must be fed non-GM feed from birth. In practice, operators currently try to feed animals non-GM feed from birth. Non-GM feed for breeding animals is also sought from 2013 onwards.

Table 3.17 Minimum non-GM feeding times set by Member State legislation and guidelines

Product type	Description	AT*	DE	FR	CH, FI, NL
Dairy	Before milk production	2 weeks	3 months	6 months	From birth
Poultry	Before slaughter	3 days from birth	10 weeks	3 days from birth	From birth
Eggs	Before egg production	6 weeks	6 weeks	6 weeks	From birth
Pigs	Before slaughter	Total period of fattening	4 months	Approx 4.5 months***	From birth
Small ruminants	Before slaughter	Total period of fattening	6 months	(see 'other')	From birth
Cattle	Before slaughter	12 months**	12 months**	12 months	From birth
Other	Before slaughter or production Before harvest	From birth (fish)	From birth	12 months**	From birth

** Minimum feeding times are transitory provisions to 2017, after which all animals must be fed non-GM feed from birth. In practice, operators currently try to feed animals non-GM feed from birth.*

*** or the equivalent of three quarters of their life if life span is less than one year; includes horses.*

**** the equivalent of three quarters of their life if life span is less than one year. The average life span of a pig for slaughter is six months; three-quarters of their life span would be approximately 4.5 months.*

3.9.2 Private, Type I and II minimum non-GM feeding times for animals

Private operators have set their own non-GM feeding time requirements. The requirements generally match the strict approach taken in Finland, the Netherlands, and Switzerland where non-GM feed is required from birth for all animals before production or slaughter. Table 3.18 shows the minimum feeding times set by private operators where these are known.

Table 3.18 Minimum non-GM feeding times set by private operators

Product type	Description	Carrefour	Loué	Bio cohérence	Some AOC cheeses (FR)	Some Label Rouge	Signé Poitou Charentes	Défis Ruraux	UNI working group (e.g. Colderetti)	COOP Italia
Dairy	Before milk production	N/A	N/A	From birth	From birth	From birth	From birth	From birth	Unknown	From birth
Poultry	Before slaughter	From birth	From birth	From birth	N/A	From birth	From birth	From birth	Unknown	From birth
Eggs	Before egg production	From birth	From birth	From birth	N/A	From birth	From birth	From birth	Unknown	From birth
Other	Before slaughter	From birth	N/A	From birth	N/A	From birth	From birth	From birth	Unknown	From birth

The only exception is the IKC UM scheme in Slovenia, where the following conversion periods for the use of GM feed are applied:

- Cattle and horses for meat production: 12 months or a minimum of two-thirds of its lifespan;
- Pigs: three months before slaughter;

- Sheep and goats: six months or a minimum of two-thirds of its lifespan;
- Animals for milk production: two weeks before milk production;
- Poultry for egg production: six weeks before egg production;
- Poultry for meat production: entire breeding period; and
- Aquaculture: entire breeding period.

A further basic rule is applied by the IKC UM, which is that all animals must be fed with certified or similar non-GM feed from the day of birth or from the end of the suckling period.

Apiculture products can be labelled as GM(O)-free under the IKC UM scheme when there is no GM crop production for a radius of three kilometres from the apiary. The rule applies during the entire bee keeping season. There are no registered GM plants produced in Slovenia at this time.

3.10 Certification, controls and monitoring requirements

3.10.1 Public, Type I certification, monitoring and enforcement requirements

Some of the schemes operating in EU Member States use certification bodies that meet the national requirements to certify individual operators wishing to make 'GM(O)-free' claims or operate a non-GM supply chain. For example, the Austrian Federal Ministry for Economy, Family and Youth introduced guidelines for risk-based controls, which includes guidelines for self-control, external controls and oversight from an accredited independent body as well as a compulsory monitoring system. Compliance must be checked at all productions steps. The certifying authority must be displayed on the label. Control and certification rules for the GM(O)-free criterion are based on EN 45011. Several independent external control organisations in Austria are authorised to certify and control GM(O)-free food.

Other schemes do not require certification but provide guidance on this matter. For example, the German legislation does not require certification but VLOG recommends that producers of non-GM feed obtain certification to demonstrate that they are taking precautions to ensure that any GM presence below the required limit is adventitious or technically unavoidable. Verification of compliance with legal rules is the responsibility of the competent food control authorities of the federal states. Where non-compliance is found, VLOG may withdraw the operator's right to use the 'ohne gentechnik' label.

National approaches to certification, monitoring and labelling requirements for Type I, government-led schemes are summarised below.

3.10.1.1 Austria

The Austrian labelling scheme is process-based, with self-monitoring and third party certification by an accredited body required at all stages of the supply chain. Monitoring is based on checks and tests on inputs to the final product, rather than the end product itself.

Controls are standardised by the guideline of the Bundesministerium für Familie, Wirtschaft und Jugend (BMWFJ). There are standardised rules for monitoring and control in the 'Guideline for the risk-based control of the absence of genetic engineering' (1998).[25] All control bodies are accredited according to EN 45011.

Institutions authorised by the ARGE conduct periodic controls along the entire production chain to verify compliance with the requirements for the ARGE label. As with organic production, there are controls over movement of goods as well as analysis of random samples. The label must include the name of the certification body.

[25] 'Leitline zur risikobasierten Kontrolle auf Gentechnikfreiheit'

3.10.1.2 Germany

The 'ohne Gentechnik' label is owned by the Ministry of Food, Agriculture and Consumer Protection (BMELV) but the scheme is operated by the Association for Food without Genetic Engineering (VLOG),[26] a governing body established in 2010. The VLOG is an industry association representing sectors including retail, food production, and processing.

The German labelling scheme is process-based, as it relies on monitoring based on checks and tests on the inputs to the final product, rather than the end product itself. The manufacturing process must adhere to certain requirements and must be certified. VLOG is responsible for the certification and management of the 'ohne Gentechnik' label and is therefore authorised to license companies who wish to use the label on their products.

National legislation does not include any obligatory controls on GM(O)-free labelled food. Producers are required to provide documentary evidence to the VLOG that ingredients come from GM(O)-free sources/products when submitting an application to use the label. A control framework is under discussion with the VLOG and its members and licensees.

3.10.1.3 France

The French labelling scheme is process-based for animal and animal-derived products. The manufacturing process (e.g. use of non-GM feed) determines the eligibility of the product to be labelled. Monitoring is based on checks and tests on the inputs to the final product, rather than the end product itself. For plants and ingredients of plant origin the scheme is product-based, as products are tested for compliance with the labelling requirements.

There are no certification requirements that accompany the application of the French legislation on GM(O)-free labelling (Decree n° 2012-128). The DGCCRF[27] is responsible for monitoring operators to ensure that they are compliant with EU and National Legislation, using the following complementary tools:

- Traceability of GMOs from raw materials. This includes an audit trail (i.e. documentation) identifying the origin and destination of the product for each commercial transaction.
- Analytical laboratory tests to check the presence of DNA or proteins as a result of genetic modification and to identify raw materials, ingredients or finished products. These tests are required as part of the traceability and auto-control procedures.

Controls are undertaken in both manufacturing plants and depots. The DGCCRF carries out investigations in the seed, food and feed production sectors. Control plans are established for each stage of the production process. The frequency of control depends on the perceived risk of the operator breaching the conditions of the decree. Where a breach has been identified, the operator may be controlled several times a month until the authorities are satisfied that the conditions have been met. In other cases, inspections may be conducted on an annual basis, or less frequently than that.

Operators also carry out their own controls, including:

- Self-controls which may include revising the product specification details as well as sample analysis; and
- Commissioning an independent and authorized third party certification body to carry out controls of the production process (internal control).

The operator auto-controls and third party controls are checked by the DGCCRF as explained above.

[26] 'Verband Lebensmittel ohne Gentechnik e.V'

[27] Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes.

3.10.1.4 Netherlands

Administrative methods (i.e. identity preservation) for tracking GMOs are used in the Netherlands. The trader of a product with a 'prepared without gene technology' label must be able to provide documents to substantiate compliance with those conditions (process-based requirements). Inspection is officially a task of the Netherlands Food and Consumer Product Safety Authority (NVWA), which conducts occasional inspections based on the expected risk of contamination (NVWA, 2008).

3.10.1.5 Switzerland

In Switzerland, the absence of GMOs must be demonstrated by comprehensive documentation and the adoption of measures aimed at the prevention of GM contamination (process-based requirements).

3.10.2 Private, Type I certification, monitoring and enforcement requirements

Some of the schemes run by private operators use certification bodies to certify individual operators wishing to make 'GM(O)-free' claims or operate a non-GM supply chain.

3.10.2.1 Carrefour

The Carrefour labelling scheme is process-based. Carrefour has a policy of working closely with farmers and feed producers to ensure control over the quality of its supply chain. Carrefour's control plan includes carrying out annual controls at the producer level to ensure that the feed they receive meets Carrefour's requirements, including lab analysis. Feed manufacturing plants are certified as GM(O)-free by independent accreditation bodies.

An independent accreditation body has been commissioned by Carrefour to carry out annual controls of its own processes concerning the procurement of animal feed. These controls may include documentation (verification of supply documents and invoices to ensure traceability) as well as samples taken for laboratory analysis.

3.10.2.2 UNI (Ente Nazionale Italiano di unificazione) working group

According to UNI control procedures, in order to use the label, organisations must:

- Develop and formalize a risk analysis plan to identify the stages in the process in which there may be a risk of GM contamination, which must at a minimum include: the composition of the food and/or feed, sources of raw materials that make up the food and/or feed, and the potential for cross-contamination at different stages of the process (for example, coexistence within the same facilities of GM and non-GM materials).
- Identify necessary measures to reduce risk (e.g. procedural, documentary, inspection-based and/or analytical), to have these validated and to define the frequency with which these measures must be implemented;
- Identify the steps in the process during which analytical testing would be employed if required by the risk assessment. Testing must be conducted in accordance with the ISO standard ISO17025; and
- Define the sampling criteria consistent with the analysis of risk, to ensure that the sample is representative of the lot as a whole.

Moreover, organisations must:

- Develop and formalize a traceability system; and
- Ensure that any products which do not conform to the standard, or which are awaiting the outcome of compliance are identified, segregated and controlled to prevent their unintended use or delivery.

3.10.2.3 COOP Italia

The scheme is based on technical contracts with suppliers, formalized by COOP Italia (process-based requirements). The scheme is monitored through a system of audits by FQC

(the external body which monitors COOP's supply chain on behalf of COOP itself) and COOP Italia's third party certifiers for private labels (CSQA and Bureau Veritas).

3.10.2.4 Loué

The Loué scheme is process-based. Monitoring procedures are carried out at the animal feed plant and controls are carried out at each stage of production including:

- Auto-controls undertaken by Loué (analysis and testing of raw material if required);
- Internal controls undertaken by an ODG (Organisme de Gestion) to ensure product conformity and that the specifications have been met; and
- External controls undertaken by an independent certification body accredited by the Comité Francais d'Accréditation (COFRAC) and registered by the Institut National de l'Origine et de la Qualité (INAO).

Controls are carried out at both conventional and organic feed production plants. The DGCCRF also carries out checks on producers, the frequency of which depends on the perceived risk of infringing EU and French labelling laws.

3.10.2.5 Auchan

Auchan also uses process-based requirements for its GM(O)-free scheme. The entire supply chain is checked, from feed manufacturers to farms. An independent certification body carries out the controls on behalf of Auchan, including analytical testing of the feed and audit of the processes and documents of the feed manufacturers and farmers.

3.10.3 Private, Type II certification, monitoring and enforcement requirements

3.10.3.1 French AOC cheeses

These products must comply with a specific set of requirements at all stages of production and preparation (process-based requirements). Producers are monitored several times a year using chemical and microbiological tests carried out to demonstrate the gustative quality of the product. In order to obtain Appellation d'Origine Contrôlée (AOC) certification, a product must be controlled in three different ways:

- Auto-controls: the producer or manufacturer registers all the information concerning their products, its traceability and the ingredients used;
- Internal controls: carried out by the Organisme de Gestion (ODG) which ensures product conformity and that the specifications have been met; and
- External controls: undertaken by an independent inspection body which reports back to the national AOC body Institut National des Appellations d'Origine (INAO).

3.10.3.2 Bio Cohérence

Bio Cohérence specifications include measures that must be taken by operators to avoid GM contamination such as thorough cleaning of shared machinery, systematic testing of feed providers, and avoiding the use of soy feed (process-based requirements).

3.10.3.3 Label Rouge

The operators involved in producing a Label Rouge product have formed an association called Organismes de Défense et de Gestion (ODGs). The ODG's functions include drafting the product specifications, managing the Label Rouge, carrying out internal product controls and marketing and promotion. Many controls are undertaken at each stage of Label Rouge production, and at different levels, including:

- Internally by the businesses (auto-controls);
- By the ODG (internal controls); and
- By an independent certification body accredited by the Comité Français d'Acréditation (COFRAC) and registered with the INAO (external controls). The INAO validates control

plans which define the distribution of internal and external controls and frequency of controls at each stage of the production process.

3.10.3.4 Défis Ruraux

The farmers whose products carry the Défis Ruraux label must meet the following requirements:

- A technician goes on-site to evaluate the producer's environmental, social and economic practices;
- A report is submitted to an ethics committee comprising consumer representatives, producers and experts which evaluates whether the producer's practices conform to the Défis Ruraux specifications;
- The producer signs a contract which states specific improvement objectives to be met within the following two years; and
- The producer is re-evaluated every two years, with new objectives established each time.

3.10.3.5 Pro Planet

The Pro Planet label is awarded by the REWE group when suppliers meet the criteria specified by REWE. The label is certified by an external audit firm (TÜV Rheinland). In order to qualify, a supplier must undergo a process which is defined individually for each product category, for example fruits and vegetables, dairy, bread and bakery, paper, textiles, etc.

3.10.4 Private, Type III certification, monitoring and enforcement requirements

3.10.4.1 Sweden

The National Food Agency has developed official guidance on GMOs to identify the control activities and documentation that would be acceptable for companies to demonstrate that they do not sell products produced by or with GMOs.[28] A company claiming to sell non-GM products must be able to provide proof to the competent authority (regional food control department) that they have undertaken control measures to avoid GMOs, including collecting relevant documentation such as:

- Supplier commitments, including assurance that the product is 'free from GMOs'. These commitments are usually prepared by the client and signed by the raw material supplier as an assurance that the supplier has read and accepts the terms. The supplier commitment should conform to the following example: *'Company X only accepts products which have not been produced or processed with GMOs'.*
- Certification and raw material specifications: the supplier sends a certificate or information about the presence of GMOs in the raw material specification such as: *'We guarantee that the product does not contain, is not made of, (or) is not processed from GMOs'.* Some declarations are not allowed as they are considered misleading such as: *'The product can include GMOs under 0.9%' and 'Free from GMO'.*
- Laboratory analysis from the supplier or own laboratory tests.

Control responsibility is divided between the National Food Agency (for foodstuffs) and the Swedish Board of Agriculture (for feed).[29] The National Food Agency supports the municipal authorities in their control of 'GM(O)-free' labelling (SLV 2011).[30]

[28] Guidance document for Regulation (EC) No 1829/2003 on genetically modified food and feed, Commission Regulation (EC) No 641/2004, and traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms Regulation (EC) No 1830/2003

[29] Vägledning Genetiskt modifierade livsmedel (GMO). URL: http://www.slv.se/upload/dokument/livsmedelsforetag/vagledningar/V%C3%A4gledning%20GMO.pdf

There are no prescribed sanctions for companies labelling or marketing their products as GM(O)-free. The Swedish Food Agency has, however, ordered the removal and amendment of labelling and marketing messages. In 2009, the Swedish Food Agency found a number of producers and distributors using the words 'free from GMO' on their products. These companies were asked to remove the claims and an inspection was undertaken several months later. Some producers also recalled their products from distributors.

A food retail chain (City Gross) launched a campaign in 2010 including the slogans 'choose GMO-free' and 'Guaranteed GMO-free - Always at City Gross' to signal that they only sold Swedish pork fed on non-GM feed. The Swedish Food Agency reported the marketing campaign to the consumer Ombudsman who prohibited the retail chain from declaring the meat 'GM(O)-free'.[31]

3.10.4.2 UK supermarkets and manufacturers

Several UK supermarkets have taken the decision to eliminate (as far as possible) GM ingredients in their own branded products. This includes the use of GM feed in the production of meat products.

Suppliers are required to provide evidence that they comply with the GM(O)-free policy if they want to supply a specific retailer. 'Valid-IT', operated by Exova, is the dominant verification system in the UK. Exova maintains a database of non-GM soya and maize suppliers. Valid-IT is currently used by four major retailers: Tesco, Sainsbury's, Waitrose and Asda. Any supplier who wishes to supply these major retailers with own branded products must participate and demonstrate use of the Valid-IT system.

Previously the system was also used by Marks & Spencer, which has since adopted its own scheme for guaranteeing the non-GM status of its supply chains. Exova does not guarantee the status of products supplied by manufacturers, but simply provides assurance that suppliers have been independently assessed by a third party. Exova conducts documentary audits of a supplier's traceability systems to ensure that the supplier can provide the required level of assurance to retailers.

3.11 Market share

Though there are some 'snapshots' of the market situation, robust time series data on sales of GM(O)-free labelled products are not readily available – neither in the public domain nor via market research organisations. Direct contact with label operators has been undertaken and some assessments are provided below. Complete information is unavailable for the different schemes operating across the EU. In the cases where data on market share exist, these schemes tend to cover niches – with the exception of the government-led Austrian explicit GM(O)-free labelling scheme which has much broader coverage including 100 per cent of eggs and dairy.

Table 3.19 provides information concerning the type of products using GM(O)-free labels and their market share in the Member State in which they are used. Other relevant information is also provided, including the number of products carrying the label, the number of stores carrying the labelled products, production volume, and the number of operators engaged in the scheme. Similar information is provided in Table 3.20 for Type II schemes where this is available.

No information was collected on products labelled as GM(O)-free in Finland as the national authority, Evira, does not collect information about these products and no other information was available from stakeholders. According to the Ministry of Agriculture and Forestry,

[30] SLV (2011) National plan for food chain control 20122015. Part 2-Guidance and priorities. URL: http://www.slv.se/upload/dokument/livsmedelsforetag/vagledningar/NKP%202012-2015%20-%20Del%202%20Genomf%C3%B6rande%20mal%20och%20prioriteringar.pdf

[31] Miljötidningen (2011) Livsmedelskedja fick GMO-fodret på fal. URL: http://www.jordensvanner.se/2011/livsmedelskedja-fick-gmo-fodret-pa-fall

‘GM(O)-free’ labelling is not widely used in Finland and only a few such labelled products are available on the market due to the novelty and the strictness of the guidelines.

No information was collected on GM(O)-free labelled products in Switzerland, either, but due to the strictness of rules, which are similar to those applied in the Netherlands, it may be assumed that few products carry the indication in this country.

Table 3.19 Information concerning Type I product market share and other information on GM(O)-free labelling product coverage in EU MS

MS	Scheme name or operator	Products covered	Market share in MS	No of products	Production volume	No of stores	No of producers or staff employed
AT[32]	ARGE	Milk and milk products, eggs, bread and bakery products, soy products, oils, cereals, beverages		1,650[33]			
		Dairy products	100%				
		Eggs	100%				
		Poultry meat	90%				
		Juices, organic products and other products	25%				
	Spar Austria (ARGE label)	Organic brand, Spar Natur pur		600			
	Billa AG[34]	Pork products		4	1,000 pigs per week (2012 pilot scheme)	1,000	
	Oberndorfer Fleisch GmbH[35]	Pork products			100,000 pigs to date since July 2011		
DE	VLOG	Dairy, eggs, meat, pasta and juices					126[36]
FR	Carrefour[37]	Animal products (eggs, poultry, salmon, cooked ham, pork, veal)		350			
		Pork products	11%		2.8 million pigs per year (2011)		1,870 producers
		Veal	11%				880 producers

[32] Top Agrar Österreich vom 20.2.2012: „Österreichs Hühnerfleisch ab heute Gentechnik-frei"

[33] Mostly dairy products, followed by eggs

[34] BauernZeitung.at vom 22.3.2012 „Gentechnikfreiheit auch bei Schweinefleisch ein Thema"

[35] Interview Franz Oberndorfer

[36] Mostly dairy products, followed by eggs

[37] Conseil général de l'alimentation, de l'agriculture et des espaces ruraux,(2012) "Quel avenir pour la filière porcine française?"

MS	Scheme name or operator	Products covered	Market share in MS	No of products	Production volume	No of stores	No of producers or staff employed
	Loué	Poultry meat					
		Eggs	0.2%		28 million eggs per year		
	Auchan	Animal products (fish, poultry, pork, eggs)		70			
	Sweet corn producers	Sweet corn	100%		270,000 tonnes (tinned) 28,000 tonnes (frozen)		6 companies + 9 factories – 2,000 staff All sweet corn producers
NL	'bereid zonder gentechniek'	Soya protein isolate		1			
SI	IKC UM	Milk and milk products	16%	160			

Table 3.20 Information concerning Type I product market share and other information on GM(O)-free labelling product coverage in EU MS

MS	Scheme name or operator	Products covered	Market share in MS	No of products	Production volume	No of stores	No of producers or staff employed
DE	Heumilch	Milk					8,000 producers
FR	AOC cheeses[38]	Cheeses	46%[39]	21 (2010 data)			
	Label Rouge	Meat and meat products, dairy, fish and seafood, plant derived products		500			
	Signé Poitou-Charentes			30			1,500 operators[40]
IT	COOP Italia	Processed products		495			
	Fileni				31, 222 kg		

[38] Greenpeace, (April 2010), "Fromages AOC : des OGM sur un plateau?"

[39] Market share of AOC cheeses in France only: There are 46 AOC cheeses; in 2010, 21 of these were GM(O)-free, with 10 more planning to set specifications to prohibit the use of GMOs in their production (Greenpeace, 2010).

[40] 83% large or medium producers; 13% small independent farmers; 4% intermediaries

4 GM(O)-free labelling outlook in the EU

This chapter assesses the outlook for GM(O)-free labelling in the EU – that is, a projection of the outcomes that may occur if no action is taken at EU level and operators and national governments continue to develop their own GM(O)-free labelling schemes on a business-as-usual basis. The outlook is based on information collected through desk research and stakeholder consultation as described in Section 2.4.3. It provides a reference point to assess the expected impacts of particular elements and element combinations that may be included in harmonised EU-wide labelling. The analysis for this sub-task summarises how:

- Consumers' expectations are likely to change;
- Supply chains are likely to have to respond; and thus,
- Use of GM(O)-free labels is expected to develop in the EU in the next 10 years.

Uncertainties and their implications are highlighted.

4.1 EU consumers express a preference for GM(O)-free products, but attitudes are changing towards GM

It is difficult to directly evaluate consumer demand for GM(O)-free labelling in the EU since no such labelling scheme has been broadly implemented and EU-wide consumer surveys have not been undertaken on this issue. Moreover, willingness-to-pay (WTP) studies have observed variance between countries and regions, especially between US and EU consumers, but also amongst EU countries on this issue.[41]

4.1.1 EU consumer attitudes towards GM products are generally negative, and consumers express a willingness to pay for expressly GM(O)-free products

Consumer attitudes toward GMOs across Europe are particularly negative relative to attitudes in other countries (e.g. Bredahl, 2001; Grunert et al., 2000). Some consumers believe that GM products may have unknown and potentially long-term risks both to people's health and the environment, and consumers wish to be able to choose to buy products that do not contain or are not produced from GMOs.

As a result, some consumers express willingness to pay a significant price premium for GM(O)-free products, or expect a considerable discount on products which contain GMOs if they are to consider buying those instead. One study found that changes in willingness to pay observed when GM content was revealed were much greater than those observed when brand names were revealed (Noussair et al., 2004).

Several studies have been conducted to assess consumers' preference for GM(O)-free products,[42] although most of these have been conducted in the US, given the wider availability of GM products. Across EU Member States, attitudes vary towards GM and GM(O)-free products:

- A 2002 study of Dutch consumers found that more than 80 per cent of survey respondents said that the availability of GM(O)-free products is very important (LNV Consumentenplatform, 2002). About 65 per cent of 5,000 respondents polled in the Netherlands during the public debate 'Food and Genes' in 2002 agreed that labelling regulation should ensure that consumers can be absolutely sure that products do not contain GM ingredients. In the same survey, 18 per cent of respondents indicated that

[41] For example, in the case of beef attributes, French and German consumers have a higher willingness to pay to avoid genetically modified feed in the meat production process than British consumers, while German and British consumers would pay more for growth hormone-free beef.

[42] See, for example: McCluskey et al., 2003; Grannis and Thilmany, 2002; Misra, Grotegut, and Clem, 1997; Misra, Huang, and Ott, 1991; Roosen, Lusk, and Fox, 2003; Burton et al., 2001; Lusk, Roosen, and Fox, 2003; Roosen, 2003; Alfnes, 2004

foods produced with GM should be labelled, even if they do not contain GM ingredients (e.g. animal products) (Terlouw, 2002).

- In 1997, a referendum petition involving 1.2 million Austrians (21 per cent voter participation) called for the exclusion of GMOs in agriculture and food production. This petition forms the basis for GM(O)-free production and labelling policy in Austria (Greenpeace, 2012). More recently (2010), a survey of 1,500 Austrians reported that 74 per cent of the Austrian population believe that being free of all GMOs is a very important food quality criterion. Participants were also asked to rank the importance of different aspects regarding food quality. Being free from GMOs was rated third most important after freshness and taste (GfK Austria, 2010).
- In France, a GM(O)-free guarantee increases the price premium for a product by eight per cent, whilst knowing that a product contains GMOs reduces its price by 39 per cent. The average price premium for a GM(O)-free product over an equivalent product containing GMOs is 46.7 per cent (Noussair et al., 2004).

Conversely, studies assessing consumer preferences for GM products in Europe have found, for instance that:

- Thirty-five per cent of French consumers would refuse to purchase a product containing GMOs. The remaining 65 per cent would be willing to purchase a GM product if it was sufficiently inexpensive (Noussair et al., 2004);
- In Norway, the mean WTP to avoid GM foods is 54 per cent, whilst consumers would only be willing to buy bread produced from GM ingredients if it was discounted by 50 per cent (Kaneko and Chern, 2003; Grimsrud et al., 2004); and
- In Germany, consumers discount GM products by between 47 and 59 per cent (for soybean oil and chocolate respectively) (Dannenberg et al., 2011).

Overseas experience demonstrates similar results:

- In the United States, Roseboro (2012) shows that American consumers are willing to pay 15 per cent more for foods with GM(O)-free ingredients. The average WTP to avoid GM foods is five per cent for GM vegetable oil (Chen and Chern, 2004);
- Another study in the US found that consumers will only buy GM products if they cost 14 per cent less than conventional products (Huffman, 2004);
- In Japan, the WTP to avoid noodles made with GM ingredients is 50 per cent (McCluskey et al., 2003); and
- In China, consumers are willing to pay 23 – 52 per cent more for non-GM soybean oil and 41 – 74 per cent for non-GM rice (Lin et al., 2006).

Lusk et al. (2005) conducted a comprehensive meta-analysis of valuation studies related to GM(O)-free products, the results of which are summarised in Annex 8. The study found that:

- Consumers are often willing to pay a significant premium for GM(O)-free products when all else is equal given that they generally value GM(O)-free products more than GM products.
- The average world-wide WTP for GM(O)-free products is 29 per cent.

4.1.2 There are some studies that indicate consumer aversion to GM is decreasing over time; willingness to pay studies may overestimate consumer preferences

The conclusions from these studies should be treated with some caution, however. Several studies have found that WTP studies over-estimate consumer preferences for a certain attribute because they are typically based on hypothetical situations and therefore do not accurately reflect real-world purchasing decisions (see section 4.1.3 below).

Moreover, some studies have also demonstrated that aversion to GM products is decreasing. For example, a survey was undertaken in the UK by food and grocery research organisation IGD in October 2008 (sample size = 5,697) which found that 53 per cent of

consumers did not think about GM food when making food purchasing decisions while 21 per cent checked food labels to ensure the food is non-GM. Furthermore, 52 per cent of consumers neither supported nor opposed the presence of GM in food products (IGD 2010). Another UK study found that other issues such as rising food prices are increasingly more important than concerns over GMOs: only 22 per cent of respondents selected GM as a food-related concern in 2012, compared to 40 per cent in 2001 (FSA, 2012). These results suggest that the British public are not as opposed to GM foods as they have been previously.

A study in Austria in 2012 ('Happiness and freedom from GM-food') drew on the views of about 2,000 people from across Austria through a computer assisted web survey. When respondents were asked which of the 11 aspects they thought were very important when buying food, about 20 per cent selected being GM(O)-free, which was rated sixth most important overall after regional origin and quality. The most important element was freshness. The results also suggested that older interviewees (above the age of 40) rated the GM(O)-free aspect as being more important than younger interviewees.

Several studies have found that the perceived lack of consumer benefit from GM products raises consumers' perception of risks (e.g. Saba et al. 2000). Where GM products deliver consumer benefits beyond price reductions, willingness to pay for such products may increase. Some recent WTP studies have considered situations where consumers may derive non-price benefits (e.g. improved nutrition, better taste, increased shelf life).[43] Some studies have found that consumers are willing to buy GM foods where there is a clearly defined consumer benefit (e.g., Boccaletti and Moro 2000; Verdurme, Gellynck, and Viaene 2001; Teisl et al. 2003). A study in Italy by Canavari and Nayga (2009) found that acceptance of GM products increases when a nutritional benefit is introduced. Consumers who reacted positively to such products indicated that they would purchase these products even with a 10 per cent price increase.[44]

4.1.3 There is a gap between consumer attitudes and actions

Attitudes are notoriously poor predictors of behaviour; there is an evident lack of consistency between people's engagement in ethical issues and their food choices (Michelle, 2012). Individuals' decisions can therefore differ drastically between when they are hypothetical, as in a contingent valuation study or other survey, and when they involve an actual commitment to make a purchase,[45] especially where the survey does not enquire about purchasing decisions at specific price points (Ajzen et al. 1996).

There are particular issues where surveys ask respondents about preferences for public goods such as ensuring GM(O)-free crop production. Respondents tend to answer such questions from the perspective of their role as citizens, who make judgements from society's point of view, rather than their role as consumers, who make actual purchasing decisions (Noussair et al., 2004).

Mather et al. (2011) suggest that the discrepancy between hypothetical and real life choices arises because 'social expectancy' means consumers make different choices in a survey situation than they do when they make real-life purchasing decisions. As a result, a consumer may be more likely to choose a cheaper, GM product if they believe they are not being judged, but in a survey situation, there is a greater desire to make a socially acceptable choice.

Moreover, a recent study conducted by DG AGRI (2012) found that EU consumers look at, on average, five aspects when buying fresh or processed meat products, including the price per kilogram, the total price, the use by/best before date, country of origin and producer.

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[43] See, for instance, O'Connor et al. 2005; Onyango and Govindasamy 2005; Hossain and Onyango 2004; Knight, 2005, Loureiro and Bugbee, 2005; Noussair et al., 2002

[44] Italy case study

[45] See, for instance Neill et al., 1994; Cummings et al., 1995; Brookshire and Coursey, 1987; List and Shogren, 1998; List and Gallet, 2001

Whether the animal was fed with GM feed ranked 10th for fresh meat products (15% of consumers surveyed say they look for this aspect when buying meat) and 12th for processed meat products (14% of consumers surveyed say they look for this aspect when buying meat).

It is therefore possible that expressed negative consumer perceptions of GM products do not translate directly into purchasing behaviours whereby consumers either avoid GM products or favour GM(O)-free products. In particular, consumers who say they would not buy GM foods when surveyed may in fact do so in real life. Some examples include:

- Despite considerable antagonism towards GM foods in the UK, several million tins of clearly labelled GM tomato paste were sold following its introduction in 1996 (this product had a clear consumer benefit, in that it was cheaper than its non-GM competitors and had a thicker consistency) (Halford and Shewry, 2000).
- One study found surprising differences between consumer choices made in a hypothetical situation (e.g. in a survey using pictures of the products) and actual decisions made in a real world context (e.g. buying products presented at a food stall). From the survey results, GM labelled products were discounted by 15 per cent whereas GM labelled products were the most popular purchase in food stall sales (consumers were told that the GM products produced their own natural insecticide and were therefore “100% spray free”) (Mather et al., 2011).
- Despite consumers expressing a willingness to pay of between 23 and 52 per cent for GM(O)-free soybean oil, the product market share in the Nanjing area of China decreased by only two per cent following mandatory labelling (Chang, 2007). In fact, one study found no significant impact of positive GM labelling on consumers’ purchasing behaviour. The import of GM soybean to China has almost doubled since mandatory labelling was introduced in 2003 (Lin et al., 2008).

These examples are limited due to the lack studies that directly assess behavioural responses to GM and GM(O)-free products. Nonetheless, examples from similar food policy cases in the EU and third countries include:

- Despite about 60 per cent of French consumers claiming a WTP of 10 per cent more for fair trade labelled goods, sales of these products remain low (e.g. in 2006 only 42 per cent of consumers bought fair trade products in that year) (Balineau and Dufeu, 2010).
- Despite expressed consumer preferences for milk from non rBST-treated cows, milk sales did not change significantly with the use of rBST in the US (Einsiedel, 2001).
- Despite the fact that most consumers in the US (84 per cent) perceived a risk associated with rBST treated milk, only a small percentage (14 per cent) acted on these perceptions (Zepeda et al., 2003).
- Another US study found that 62 per cent of consumers who originally stated they would not purchase irradiated beef did in fact do so when the purchasing situation was simulated (Wood and Bruhn, 2000).

The results of willingness-to-pay studies should therefore be treated with some caution. For instance, one study found that worldwide, real, auction-elicited premiums were as much as 40 per cent lower than hypothetical ones (Gifford and Bernard, 2008). This discrepancy is potentially due to consumer uncertainty in the products and their attributes, especially where consumers are unable to directly observe the product quality (Balineau and Dufeu, 2010).

4.2 Market growth as an indication of consumer demand

Nonetheless, it is also clear that there is a market for GM(O)-free products in the EU. Market demand can be considered an indirect indication of consumer preferences for GM(O)-free foods, although it is not possible to determine from such data whether there is a direct link between purchases of GM(O)-free products and consumer preferences for this attribute, or only an association, as other factors may influence purchases of GM(O)-free products that are not directly related to this quality.

This section summarises available information on expected growth in the market for GM(O)-free products across Member States where such information is available. Most of these data were provided through consultation with stakeholders.

4.2.1 Austria

There are indications that the share of GM(O)-free products is increasing in Austria for a selection of animal products. For example, in 2010, the Austrian milk industry and egg producers switched completely to supply-chain controlled non-GM feed for their animals. Since January 2012, the largest poultry producers, which cover about 90 per cent of the Austrian market, have begun using non-GM feed. Because of the size and market relevance of the retailers (Hofer, REWE Group, Spar) and producers involved, it is expected that the entire poultry production sector will shortly follow suit.

A pilot project conducted by the supplier Oberndorfer Fleisch GmbH processed 1,000 hogs per week fed on non-GM feed (BauernZeitung.at, 2012). The Oberndorfer Fleisch GmbH aims to launch processed GM(O)-free pork products at the end of 2012 for the first time, using the ARGE GM(O)-free label (Interview Franz Oberndorfer). There are also six small pilot projects to market GM(O)-free pork in cooperation with the AMA involving 100 farms.

Altogether, only about one per cent of the Austrian pork market is GM(O)-free, although another two per cent is organic pork which is also 'GM(O)-free'. Overall, the GM(O)-free label is most widely used for fresh products sold in the food retail sector, where animal welfare and food origins are important to consumers, as well as other elements such as whether a product is GM(O)-free. It is much less common in the case of processed food products and in 'cash and carry' markets in Austria.[46]

4.2.2 Germany

Although sales volumes could not be obtained, producers have cited increasing sales after their products were labelled as GM(O)-free. For example, Zottarella (mozzarella) cheese nearly doubled its sales after the company that makes this product began to use the label in 2012. But the company also extensively promoted the GM(O)-free attribute at the time, and this increased marketing may be at least partly responsible for the sales increase. The company Landliebe also reports increased turnover of 15 per cent under the German GM(O)-free label.[47]

4.2.3 France

The French scheme is expected to be used by producers selling directly to the public, as well as by major retailers. There is only one example of producers or retailers using the French GM(O)-free label, but this is expected to change over time. The retailer Auchan has been selling non-GM fed animal products since 1997 including a large proportion of organic own-brand food products (around 2,000 products). When the GM(O)-free labelling decree came into force in 2012, Auchan introduced GM(O)-free labelling for around 70 own-brand conventionally produced animal and animal-derived products in their stores. The products include fish, poultry, pork and eggs.

For plants and ingredients of plant origin the French labelling scheme may only be used for plants or plant-derived products which have a GM alternative. Since no GM crops are permitted to be grown in France, it is expected that the uptake of labels will primarily concern animal products.

4.2.4 Slovenia

An estimated 160 GM(O)-free products are currently labelled in Slovenia covering approximately 16 per cent of all milk and milk products produced in the country. Operators

[46] Interview, Agricultural Chamber of Commerce, Austria

[47] Interview, Greenpeace

have seen sales increases for GM(O)-free certified and labelled products of more than 20 per cent since the label's introduction in 2011 and particularly for small producers with on-farm processing.

4.2.5 Belgium, Finland, The Netherlands, Sweden and Switzerland

In those countries where a strict approach to GM(O)-free labelling is required (Finland, The Netherlands, Switzerland), there are few such products on the market and in those where it is not allowed (Belgium and Sweden) there are no authorised products, although some unauthorised labels have been observed in Sweden. Market growth for GM(O)-free labelled products is expected to remain very limited or to be non-existent in these countries.

4.2.6 Organic production

Organic production may also be considered a proxy indicator of interest in GM(O)-free production. For example, a survey conducted in 2008 found that almost half of respondents (n=991) would not buy organic food if this was found to contain GM(O)-ingredients (King's College, 2008).

In the EU, the land devoted to organic agriculture has increased significantly: over the period 2000-2008, the total organic area grew from 4.3 to 7.6 million hectares, corresponding to a 7.4 per cent yearly increase (European Commission, 2010a). Organic food consumption has also increased in the EU, and this is particularly evident in the following markets:

- Germany registered a 14 per cent yearly increase from 2000 to 2008, and the market remained stable after the financial crisis (European Commission, 2010a);
- Italy has seen a nine per cent yearly increase in the period 2001-2009 (European Commission, 2010a);
- The UK has seen a 12 per cent annual increase in the period 2000-2008. The economic recession has affected the UK organic market resulting in a 14 per cent decrease in consumption in 2009 (European Commission, 2010a);
- France registered an average annual increase of 18 per cent in the period 2005-2009. The organic food market is growing in France despite the recession. In 2011, the majority of organic food consumed in France (78 per cent) was also produced France, with imports totalling 32 per cent. In early 2012, the number of hectares of organically farmed land exceeded one million. The total number of organic operators increased by 14 per cent, totalling 35,271 in the last quarter of 2011. At the same time, the number of farms increased by 12.3 per cent to reach 23,135. Nearly €4 billion worth of organic produce was sold in France in 2011, an 11 per cent increase compared to 2010.
- The Irish organic scheme run by 'Scully' covers the full range of products: meat, dairy, fruit and vegetables, dried goods, fish, chilled produce and beverages, representing approximately €100 million and 1-2 per cent of the market.
- The market share for organic products in the Netherlands was approximately two per cent overall in 2011; the share was highest in eggs (9.8 per cent), dairy products (not including butter and cheese) (6 per cent), and fruits and vegetables (3.3 per cent) (Ministerie EL&I, 2012).

4.3 Costs to produce GM(O)-free products

Some retailers and manufacturers use GM(O)-free labels or maintain non-GM supply chains due to expressed and revealed consumer demand for these products. But producing GM(O)-free products entails significant costs in some cases, and these are not often reflected in additional costs to consumers, but are rather absorbed by the supply chain. This section summarises information on cost estimates to produce GM(O)-free products and cost distributions along the food chain which were provided by some companies through consultation for this study. This section considers the continued potential for GM(O)-free production in the EU under these circumstances.

4.3.1 Price premia have been observed on some GM(O)-free products, but many products are priced no differently than equivalent conventional products

Most GM(O)-free schemes do not obtain a price premium for their products: representatives from Carrefour, Loué, and COOP Italia indicated that their GM(O)-free products are priced no higher than equivalent conventional products (personal communications). In Austria, the transition to entirely GM(O)-free production in the egg and poultry sector in 2012 means that there is no longer a price difference for these products. GM(O)-free products are also typically no more expensive than conventional products in Germany. Carrefour has stated that any difference in the price of non-GM fed animal products compared to GM-fed animal products would make labelling commercially unviable.

Some Austrian pork producers have seen a price premium of €1 per kg. Billa AG GM(O)-free products are 50 cents per kg more expensive than conventional products. Equally, some non-GM products sold in the UK are less expensive than similar products because they are 'own branded' products which are marketed as 'everyday value', 'basics' or 'smart price' products.

4.3.2 GM(O)-free products generally cost more to produce than their conventional alternatives and these costs are often borne by the supply chain

GM(O)-free products are generally more expensive to produce and supply than an equivalent product. These costs are not typically borne by consumers:

- Carrefour estimates that it costs producers €15 to €30 per tonne more to produce GM(O)-free soy meal compared to GM soy meal. This is equivalent to an eight per cent increase per tonne. This cost is absorbed by the producer, who gets a guaranteed order of soy-meal on an annual basis. Around 200,000 tonnes of GM(O)-free soy-meal are ordered by Carrefour each year.
- COOP Italia guarantees a premium price to suppliers providing non-GM products in order to offset their higher costs in terms of both raw materials and technical compliance. Suppliers bear higher operational costs as well as implicit costs (the opportunity costs of dealing with conventional goods) due to segregated processing facilities, logistics operations and premium payments for non-GM products. COOP estimates that the cost of monitoring the entire supply chain for non-GM is €298,000 per year. For animal products, beef certification is the most expensive item at €90,000 per year, whereas milk certification costs only €4,000 per year. Monitoring costs related to eggs, cold cuts, and feed are €5,000, €53,000 and €23,000 respectively. The cost of controls for non-GM industrial grocery products are approximately €22,000 per year. These additional costs are not passed on to consumers.
- UK farming unions believe it will be more difficult for farmers to remain financially competitive if they must continue to purchase non-GM feed for their livestock. About 30 million tonnes of soybean meal are imported into the EU every year, mostly from South American countries where the majority of soybeans are genetically modified. Most own branded products in supermarkets are cheaper than other brands, marketed as 'everyday value', 'basics' or 'smart price'. Some UK stakeholders question whether these 'budget' foods can continue to be produced using non-GM ingredients over the long term.
- Producers and traders bear most of the additional cost for GM(O)-free labelling in Austria; very little is passed onto consumers via higher prices.[48] Additional costs occur mostly due to increased prices associated with GM(O)-free feed (the price difference was estimated to be between €30-60/t higher in March 2012) and control costs. In the case of GM(O)-free poultry production (Gressl, AMA and Mayringer, Geflügelmastgenossenschaft).

[48] Personal communication with representatives from Spar Austria, Matousek, REWE, Anonymous, Bio Austria, Faber, ARGE

- In Austria, additional costs to GM(O)-free pork producers range from €0.05 to €0.06 cent/kg. On farms where breeding and fattening is combined in one production process, the additional costs are even higher (€0.10 cents/kg half of a carcass). About 50 per cent of Austrian pork farms include both breeding and fattening operations (Gressl, AMA). The IBOSCHWEIN brand of GM(O)-free pork meat reports 10 per cent additional costs associated with GM(O)-free production (Interview Franz Oberndorfer).
- In the Netherlands, the strict criteria for the use of the 'produced without gene technology' label requires the application of IP (or similar) systems that can significantly affect the production costs when applied to complex production chains in relatively small markets. This means that consumer choice in the Netherlands for 'GM(O)-free' products has been largely restricted to organic foods (with the exception of one product, soya protein isolate).
- The additional cost of producing GM(O)-free products is absorbed by the Loué producers and costs are increasing.

4.3.3 Operators are concerned about their ability to maintain a supply of non-GM feed for livestock in the future

Operators are concerned about their ability to maintain a supply of non-GM feed for livestock in the future due to rising costs to obtain these materials. There is considerable volatility in the price of GM(O)-free feed . In 2012, the GM(O)-free price premium of soya more than doubled from €30/t to €60-70/t (Agricultural Chamber Austria). These price fluctuations cannot be transferred to the retailer or to consumers (Gressl, AMA; Matousek, REWE).Some retailers are moving away from non-GM supply chain assured policies, particularly for poultry in the UK. Others may follow.

Concerns related to sourcing of non-GM feed vary by type of livestock:

- GM(O)-free pork production is associated with higher additional costs than the production of GM(O)-free milk, eggs and poultry;
- Additional feeding costs associated with GM(O)-free poultry production depend on the type of poultry (€0.03-0.06 cent/kg live weight) (Mayringer, Gelfügelmastgenossenschaft); and
- Additional costs to milk producers range from €0.01 to €0.015 cent/litre milk (Petschar, Association of Dairy Industry).

Additional costs in some Member States are high in the case of GM(O)-free imports from South America due to the distance and requirements associated with GM(O)-free transportation. The transport line of GM(O)-free feed must be strictly separated from conventional lines to avoid contamination, which must be guaranteed, verified and certified.

A new initiative called 'Donausoja' ('Soy from the Danube')[49] began in January 2012, which aims to foster and promote the cross-border production and sale of soy in the Danube region. The initiative aims to improve the independence of European soy supplies. The association aims to develop guidelines for soy production, which should work as a basis for contract schemes and quality controls of soy production within the Danube region (Krön, Donau-Soja).

Information gathered for the UK case study indicates that UK retailers anticipate sourcing of non-GM feed will become more difficult in the future and ideally would not want to be in the position of sourcing 'GM(O)-free' indefinitely.[50] In February 2009, speaking at a conference the then chief executive of retailer Tesco indicated that they would like to reopen the debate

[49] Donau Soja (2013) website, Soja – Herausforderung für Landwirtschaft und Lebensmittelproduktion (Soy – the challenge for agriculture and food production), http://www.donausoja.org/donau-soja.

[50] Based on personal communication with one retailer representative.

on GM amongst British consumers.[51] The GM(O)-free schemes in UK supermarkets have been predicated by consumer opinion, and recent decisions by most major UK supermarkets to allow GM feed in poultry were made due to rising costs for GM(O)-free soya, and declining concern about GM amongst the public.

4.4 The market share of GM(O)-free products in the EU cannot be determined with existing data, but where data at local and national levels exist, the schemes tend to have limited market share

Despite rising production and other costs associated with GM(O)-free labelling, use of these labels is expected to grow in some countries. For example, COOP Italia has introduced new products to their GM(O)-free scheme, including cold cuts and cheeses as well as processed meat products. Despite concerns about costs and availability of non-GM feed, information from interviews with COOP Italia's qualified suppliers indicate that the number of suppliers willing to provide non-GM products has slightly increased recently. One possible explanation is that the market for non-GM products could provide a market niche or a preferred channel for small and medium-sized producers which represent the most relevant share of the Italian food industry. This is particularly the case for small and medium-sized feed producers: whereas the market for compound feed products is characterized by large economies of scale, exploiting a market niche can give these producers an opportunity to offer product differentiation.

New rules being introduced in the EU may also provide opportunities for growth in the share of GM(O)-free products on the market:

- With the implementation of the French legislation, the number of GM(O)-free labels is likely to increase. The law may allow some non-GM food products that use a label of quality and origin (Label Rouge, AOC, IGP, Organic) but which do not currently specify the GM(O)-free nature of the ingredients to include the permitted wording in their labels.
- Facilitative legislation for GM(O)-free legislation is in preparation in Greece, Luxembourg and Croatia—operators may use GM(O)-free labels in these countries in the near future, depending on the strictness of the criteria and threshold levels chosen.

Strict conditions in the Netherlands (and similar to those set out in the first German law on 'Ohne Gentechnik') have resulted in consumer choice for 'GM(O)-free' foods being limited to organic products (with the exception of one product) over the past 13 years. This is similar to the case in Belgium, Finland, Sweden, and Switzerland, which have very strict rules on GM(O)-free labels or prohibit them.

Concern about non-GM feed supplies has led to some operators moving away from non-GM supply chain requirements, particularly in the UK. Producers are also hesitant to label more processed food in Austria and in Germany.

[51] See online news article on Food Manufacture http://www.foodmanufacture.co.uk/Business-News/Tesco-boss-prepares-for-GM-u-turn (viewed 17/7/2012).

5 Problem definition

This chapter considers the evidence that the current situation with regard to GM(O)-free labelling causes consumer detriment and problems for the single market. The different approaches taken to GM(O)-free product labelling have the potential to give rise to issues that include:

- Consumers being misled where standards differ across labelling schemes and/or the standards underlying these schemes may not match consumer expectations from a GM(O)-free label;
- Consumers being confused where they do not understand what the label means or being overwhelmed by the number of labels on product packages; and
- Food business operators facing challenges where the single market does not operate smoothly, such as additional costs or lack of market access.

Research was undertaken for this study to provide information on these issues and determine the extent to which there may be a case for harmonisation at EU level. Food business operators, industry representative associations, national competent authorities and other EU organisations were consulted using questionnaires and interviews. The study scope did not extend to a consumer survey but information about issues affecting consumers was included in the questionnaires to, and interviews with, EU stakeholders and Member State representatives. In addition, a literature review yielded information from existing studies on consumer-related issues arising from GM(O)-free labelling and from other similar kinds of labels.

Overall, information gathered for this study suggests that:

- Evidence on consumer perceptions and behaviours towards negative (-free) labels is mixed; and
- GM(O)-free labelled products are developed for national markets, such that variation in the labels across Member States is not a major issue for most operators who develop these products.

5.1 Problems for consumers

Multiple GM(O)-free schemes co-exist in the EU at present. This section addresses the problems that this situation may create for consumers.

5.1.1 Consumers may not have enough information

The absence of GM in a product is a *credence attribute* which cannot be identified by consumers either before the purchase (e.g. through appearance), as in the case of *search goods,* or after the purchase (e.g. through taste) as in the case of *experience goods*. Credence attributes require a means to verify that a product has the desired attribute in order for the market to function effectively (Grolleau and Caswell, 2006). Food labels help consumers to exercise their preferences for such goods, and can be an effective means of communicating useful information to consumers.

Most stakeholders and Member State representatives consulted for this study did not indicate that lack of information about GM(O)-free labels was a major concern for consumers. Where they did, the views were mixed. For example, some Austrian stakeholders think that consumers in Austria are already well informed about GM(O)-free products,[52] while others think that more needs to be done.[53]

[52] Matousek, REWE, Plsek, BMG

[53] Anonymous, Bio Austria, Porstner, Global 2000, Faber, ARGE, Gaugitsch, Umweltbundesamt

5.1.2 Consumers may have too much information (labelling overload)

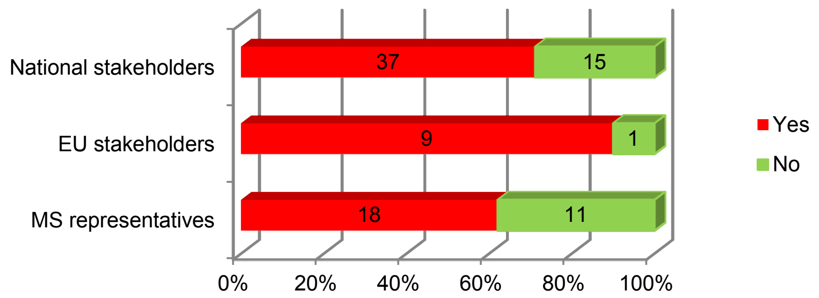
There are many labels in the market that indicate food quality attributes. A proliferation of labels can increase the risk of consumer confusion and misunderstanding, and reduce the effect of food businesses' efforts to put in place sustainable certification schemes. A move towards clearer and more understandable food labels has been one of the aims of the recent review of the EU food labelling legislation. For example, the EU is currently assessing options that would aim to address consumer concerns about country of origin labelling for pig, poultry, sheep and goat meat (DG AGRI, 2012).

A majority of all respondents for this study believe that the existence of multiple GM(O)-free labels confuses consumers (64 of 91 respondents (70 per cent)). National stakeholders cited this as the biggest problem with the current situation (11 of 52 stakeholders who identified it as a problem also cited this as the most important problem and six cited it as the second most important). Overall, MS representatives cited consumer confusion as the second biggest problem with the current situation (four of 29 cited this as the most important problem and four cited it as the second most important).

In its response to the consultation for this study, a representative from the Irish government reported that consumers are already confused by the 'array of logos and information on food labels' and stated that additional labelling is unnecessary. A Belgian MS representative also highlighted the risk of label multiplication. Four consultees[54] noted the risk of consumer confusion if a GM(O)-free label is added to already regulated schemes such as the positive labelling scheme for products containing GM and organic labelling. The Finnish government representative added that the existing harmonised positive labelling is also not understood by consumers, who are unaware of the criteria behind it. Key findings are summarised in Figure 5.1. Sectoral responses for national stakeholders are provided in Figure 5.2.

Figure 5.1 A majority of respondents thought consumer confusion over multiple labels was a problem (though not necessarily the most important one)

"Is consumer confusion over multiple/different labels one of the problems arising from the current situation?"

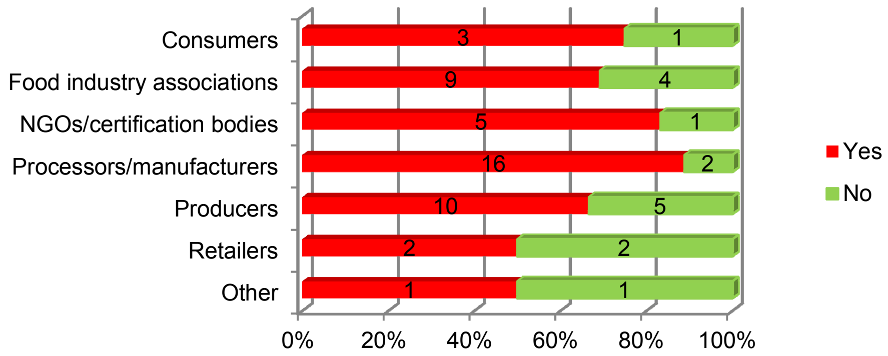


Note: 4 MS representatives ranked it 1st, 4 ranked it 2nd. 2 of the 10 EU level stakeholders ranked it 1st, 3 ranked it 2nd, 11 national stakeholders ranked it 1st, 6 ranked it 2nd. In total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

[54] These included an EU level organic producer, two EU level associations of vegetable oil and proteins producers and an association of enzyme manufacturers.

Figure 5.2 Consumer confusion over multiple labels, views by sector

"Is consumer confusion over multiple/different labels one of the problems arising from the current situation?"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

5.1.3 Consumers may misunderstand the label

Although most consumers claim to read food labels often or sometimes (Cowburn and Stockley, 2005; European Heart Network, 2003), consumers can find it difficult to identify the label, even when it is present. For instance, one study shows that consumers who are less informed about GM technology are unable to identify this type of information placed on the back of the product, although they do when the information is more visible on the front of the product (Matsumoto, 2004).

Even where consumers identify and process the information contained on labels, some consumers struggle to understand the information provided (MAFF, 2000). Studies have found that supermarket consumers' attitudes towards GM(O)-free labels are inconsistent when behaviour is compared to stated preference, as was observed in the nine EU Member States assessed for a study by King's College in 2008. The FCEC (2010) study suggested that consumers may not understand the meaning of 'GM(O)-free', particularly on livestock products, and that many are unaware of the fact that it is not easy to verify whether animals from which livestock products are derived were fed on non-GM feed.

5.1.4 GM(O)-free labels may mislead consumers

Studies in Germany conducted following the change in GM(O)-free labelling legislation suggest that consumers expect standards of purity in products labelled as GM(O)-free that are higher than what is required by existing GM(O)-free labelling schemes (Herrmann et al, 2008 and Henseleit et al, 2009). There are also issues as to whether the product can be verified as being GM(O)-free. This is especially true where labelling is process-based, rather than product-based, and thus relies on an audit trail rather than testing.

Consumers are generally sceptical of negative food claims (e.g. 'low fat', 'no pesticides') (Teisl et al., 2008). Several studies have also found that consumers react negatively to GM(O)-free claims (Teisl et al., 2008; Federici, 2010; Teisl et al, 2002). Consumers are even more sceptical about more generic, complex and ambiguous terms such as 'natural', 'healthy' and 'light' (Abrams et al., 2010). Approximately 57 per cent of respondents in one study believed that they could trust a GM(O)-free label.[55] Trust is higher for other labels such as Fairtrade (Nielson, 2010).[56] Research into the German GM(O)-free label found that less

[55] Austria case study

[56] Austria case study

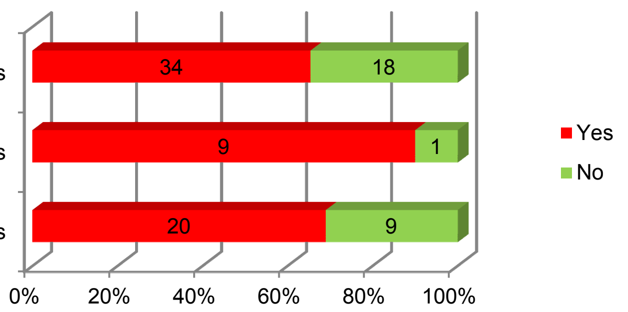
than 14 per cent of respondents trust the label completely. Approximately 34 per cent trust it somewhat and about 8 per cent do not trust it at all (Buxel and Schulz, 2010). A study in Italy found that 20 per cent of respondents claimed they would never trust a GM(O)-free label.

Consumer scepticism extends to positive claims, including GM labelled products. For example, 15 per cent of Austrians surveyed in one study (Marketagent.com, 2012) were completely unconvinced that the requirement was being met for products containing GMOs that should be labelled in other EU countries, whilst 44 per cent thought the requirement probably was not followed.

Respondents to this study thought the risk of misleading the consumer was as an important issue to consider. When stakeholders were asked what particular problems the current situation creates, their questionnaire responses mirrored those raised in the FCEC (2010) study. A majority of all respondents believed that the current situation misleads the consumer.[57] A majority of MS respondents identified 'misleading the consumer' as a problem (20 of 29) and 13 of them indicated that the biggest problem with the current situation is that consumers risk being misled. The majority of EU level stakeholders (9 of 10) identified misleading the consumer' as a problem and 4 of them ranked 'misleading the consumer' as the biggest problem (Figure 5.3).

Figure 5.3 A majority of respondents thought 'misleading the consumer' was a problem (though not necessarily the most important one)

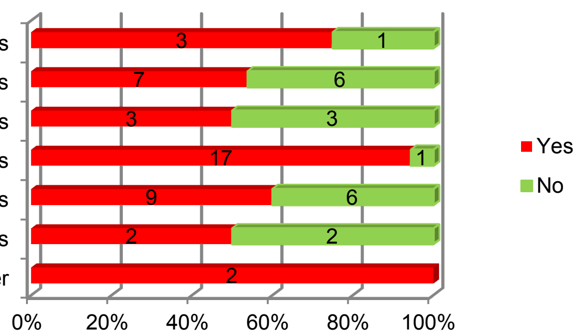
"Is 'misleading the consumer' one of the problems arising from the current situation?"



Note: 13 MS representatives ranked it 1st, 1 ranked it 2nd. 4 of the 10 EU level stakeholders ranked it 1st. 9 national stakeholders ranked it 1st, 4 ranked it 2nd. In total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents

Figure 5.4 'Misleading the consumer' is a problem, views by sector

"Is 'misleading the consumer' one of the problems arising from the current situation?"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

[57] 61 of 75 respondents (81 per cent).

In particular, some stakeholders and national authorities are concerned that GM(O)-free labelling is potentially misleading as consumers might think that all products that do not bear such labels contain GMOs, even when this is not the case. The Belgian CA and a food ingredients' producer specifically highlighted this issue in their survey response, and this issue was brought up in many interviews.

A representative of the EU food industry also indicated that labelling such as 'GM(O)-free' is misleading as it is technically impossible to verify the complete absence of GMOs (e.g. unauthorised GM contamination). Representatives of the European starch industry view GM(O)-free labelling as misleading for consumers in the case of feed, as animal products that do not contain GM material would be labelled based on the GM content in feed.

Concerns about the potential misleading nature of GM(O)-free claims have led one supermarket in Canada to modify product packaging by concealing claims of a product being GM(O)-free by 'blacking out' the 'GM(O)-free' wording (Mills, 2001). Tesco, a UK supermarket, has stated that it will never claim that a product is GM(O)-free, even though it sought to remove all GM ingredients from its own-label products for many years (Charles, 2002). Other major UK supermarkets have taken a similar approach.[58]

5.1.5 Trust in a GM(O)-free label may be eroded due to misleading claims or fraud

As mentioned above, GM(O)-free products are generally considered to be 'credence goods': consumers must rely on labels to make informed judgements about the attribute. The labelling scheme needs to be credible to engender consumer trust. The credibility of GM(O)-free labels can be reduced and eroded in several ways, including by misleading the consumer (as discussed in section 5.1.4). Additionally, there is the potential for false claims: since consumers are unable to identify the GM content of the product there is likely to be some false labelling in a GM(O)-free food market (McCluskey, 2000). A recent investigation by Sweden's National Food Administration found that four of ten products that had labels proclaiming they were GMO-free contained traces of GMOs. These problems are not unique to the GM(O)-free market – other products were found with a GM content higher than 0.9 per cent but which were not labelled as containing GMOs (Andersson, 2010). Similar problems have been found in the gluten-free market (Worosz and Wilson, 2012).

5.2 Problems for operators

Operators may also encounter difficulties with the current situation where multiple GM(O)-free schemes co-exist. For example:

- Different national requirements may present challenges to the smooth operation of the single market and create an uneven playing field for producers operating under the different schemes; and
- Monitoring, verification and certification costs for exporters and burden on authorities may be higher.

5.2.1 The survey for this study asked operators and MS representatives whether the current situation causes problems for the European single market; 84 per cent answered 'yes'

The questionnaire provided to stakeholders and EU Member State representatives asked the following question:

Do you think that the current situation regarding 'GM(O)-free' schemes cause problems for the European single market?

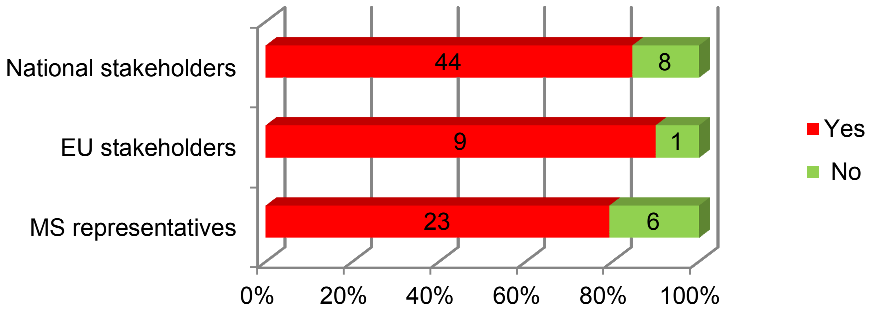
Overall, 84 per cent of respondents answered 'yes'. This includes 42 national stakeholders (86 per cent of national stakeholder respondents), 10 out of 11 EU representative

[58] Although most UK supermarkets have since decided to allow GM feed in poultry products

associations and other EU level organisations (91 per cent of respondents) and 23 MS representatives (79 per cent of respondents).

Figure 5.5 Most respondents thought the current situation causes problems

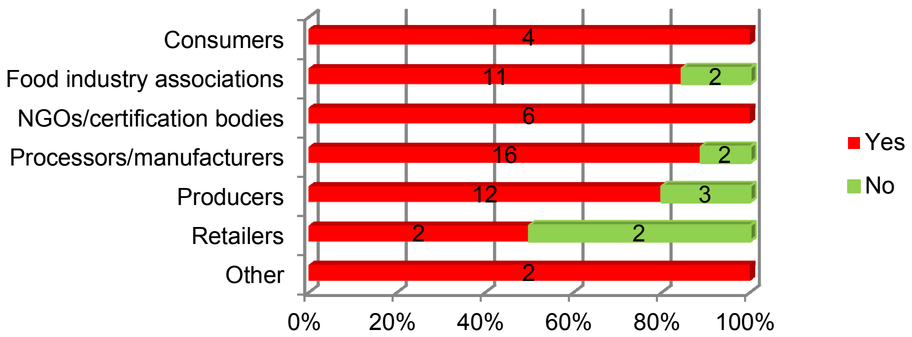
"Do you think that the current situation regarding "GM(O)-free" schemes causes problems for the European single market?"



Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 5.6 Problems for the single market, views by sector

"Do you think that the current situation regarding "GM(O)-free" schemes causes problems for the European single market?"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

When asked what particular problems the current situation creates, a majority of all respondents believe that the current situation:

- Is a problem due to different standards being used (63 of 91 respondents (69 per cent));
- Distorts competition, creating an uneven playing field for operators (62 of 91 respondents (68 per cent); and
- Leads to higher monitoring and verification costs (56 of 91 respondents (62 per cent)).
- Respondents also indicated that multiple schemes create added costs for the supply chain (45 of 91 respondents (49 per cent) and two respondents mentioned other impacts (restricted cross-border trade in raw materials and unenforceability of requirements with increased pressure on operators and authorities).

Respondents were also asked to rank these problems against others, such as misleading the consumer. Nineteen Member State respondents, seven EU level respondents and 31 national stakeholder respondents provided a ranking. Of these, a majority of respondents indicated that the biggest problem is 'misleading the consumer', followed by 'consumer confusion over multiple labels'. The third biggest problem cited by national stakeholders is

competition distortion (creating an 'uneven playing field') (7 of 31 cited this as the most important problem and 5 cited it as the second most important). National stakeholders cited problems arising from the coexistence of different standards (4 of 31 ranked this first and 7 ranked it second) and additional monitoring and verification costs (3 of 31 ranked this first and 6 ranked it second).

5.2.2 Little other evidence exists of problems related to the operation of the single market arising from the current situation

Other than the views of this study's respondents, there is little evidence that the current situation creates problems for the operation of the EU single market. Some issues have been noted in the trade between Germany and Austria, two of the longest-running labelling schemes. The standards in Austria differ in some respects to those in Germany. In principle, what is marketable in Germany is also marketable in Austria (for example, Spar Austria offers imported products labelled with the German VLOG label). But it is not clear whether GM(O)-free Austrian poultry can be sold as GM(O)-free in Germany. The same problem occurs for the trade between Germany and France. These issues appear to be most acute for markets close to Member State borders.

Under the new French decree, the threshold for adventitious or technically avoidable presence of GMOs for some product labels (plant related foods have a threshold of <0.1%) is lower than the current EU threshold level for positive labelling of 0.9%. Most stakeholders consulted for this study in France considered this to present a potential issue in terms of distorting competition amongst the Member States (other MS may have lower limits). It remains to be seen how many GM(O)-free French food products are actually exported to other Member States. Carrefour indicated that this was not a major issue.

The UK approved its first certification body for labelling GM(O)-free foods in 2013, which will allow UK producers to serve EU markets with these products (Svanevik, 2013). The certified products will be labelled with the 'Ohne Gentechnik' mark for export to Germany and the mark can also be used on meat, dairy and egg products sold to UK consumers. This example suggests that the private sector has found solutions for developing the GM(O)-free indication without restricting the functioning of the single market.

GM(O)-free labelling in EU Member States is evolving, however, and additional Member States are developing regulation in this area or considering the possibility. As the market matures, single market issues may arise which are not yet anticipated.

6 Policy objectives and options

The study terms of reference require identification of a set of core elements of a potential harmonised framework for GM(O)-free labelling in the EU and a preliminary appraisal of the impacts arising from their implementation. This chapter outlines the objectives that a harmonised EU-level GM(O)-free labelling scheme may seek to meet, the component elements of a potential scheme and how those elements might be specified. The assessment is provided in Chapter 7.

6.1 Objectives

European Commission guidelines on impact assessment require the development of three ‘tiers’ of policy objectives as part of any impact analysis.[59] These objectives describe the purpose of the legislative revision and should directly relate back to the problem definition set out in Chapter 5. Policy objectives shape policy options and form the basis against which the impacts of options can be measured and comparisons drawn (and future effects monitored). The three tiers of policy objectives required in an impact assessment are as follows:

- *General objectives*: the treaty-based goals towards which the legislation contributes, and equate to the impacts that the revision of the legislation should seek to achieve;
- *Specific objectives:* the specific aims of the revision of the legislation, and should relate directly to the results of the problem definition. In aggregate the achievement of the specific objectives should contribute towards meeting the general objectives of the legislative revision; and
- *Operational objectives:* the direct deliverables of the legislative revision (e.g. outputs), and when aggregated should also contribute towards achieving the specific objectives of the revision exercise.

The **general objectives** of potential legislative revision for GM(O)-free labelling relate directly to the potential problems reviewed in Chapter 5 of this report, that is, to:

- Improve information provision to consumers on GM(O)-free products;
- Improve the functioning of the single market in GM(O)-free products; and
- Reduce the administrative burden imposed on food business operators arising from the production of GM(O)-free products.

A set of **specific objectives** follow from the general objectives. These objectives address specific issues and causes of the potential problems discussed previously, and there are four in total:

- Reduce consumer confusion regarding GM(O)-free labels;
- Improve information for consumers so that they are not misled by GM(O)-free labels;
- Simplify rules for operators so that competition distortion does not arise where operators serve multiple markets; and
- Ensure that internal EU trade is facilitated for GM(O)-free labelled products.

6.2 Elements and options for a harmonised system

The evidence gathering task for this study provided information about the current specification of GM(O)-free labels in use across the EU and in some third countries. This research showed that active schemes contain most or all of the following elements:

[59] European Commission (2013) ‘Impact Assessment’ http://ec.europa.eu/governance/impact/key_docs/key_docs_en.htm.

- Labelling rules, including the wording used, the format of the label and any logo;
- Indication of the scope of products covered;
- Threshold levels for adventitious or technically unavoidable presence;
- Specification of inputs to be excluded and any exceptions;
- Minimum non-GM feeding times for animals fed on GM feed; and
- Certification, inspection and monitoring procedures.

These elements would form the 'building blocks' for a harmonised EU-level scheme for GM(O)-free labelling. The assessment in Section 7 considers how the specification of these elements could help to achieve the specific objectives identified above and, in so doing, address problems in the market. For each element three possible options, summarised in Table 6.1, have been examined and their impacts assessed by comparison with the reference scenario in which the regulatory *status quo* is maintained and GM(O)-free schemes continue to be developed at national level and by private operators.

A future EU scheme could, in principle, use all the available elements or only some of them, imposing common EU rules in respect of some aspects of GM(O)-free labelling schemes but not introducing additional regulation at EU level for other aspects. A scheme that had limited scope could, for instance, only set common threshold levels for adventitious or technically unavoidable GM presence, or apply only to a restricted set of products. The assessment considers each element independently and then goes on to discuss what packages of elements (and specific options) might collectively address all of the specific objectives.

Table 6.1 Proposed elements and options

Element	Most restrictive option	Intermediate option	Least restrictive option	*Status quo*
Labelling rules	Prohibitive labelling rules	EU common terms, rules and/or logo	EU guidelines	N/A
Product scope	N/A	Only certain products are covered	All products are covered	N/A
Threshold levels	<0.1%	<0.1% - food <0.9% - feed	<0.9%	None specified
Input specifications and exceptions	No GM inputs allowed and no exceptions	No GM inputs allowed, but some exceptions	GM inputs excluded, but no specific mention of exceptions made	None specified
Minimum non-GM feeding period	Non-GM feed from birth	Minimum non-GM feeding time established	EU rules do not specify minimum times –flexibility for operators and MS	None specified
Certification, inspection and monitoring	Certification required + specify inspection and monitoring rules	Inspection and monitoring rules applied, but certification not required	EU guidance, but no requirements	None specified

6.2.2 Labelling rules

There are no specific rules governing 'GM(O)-free' labelling in the EU. Products simply need to comply with the general requirements set out in the legislative framework regarding food labelling under Regulation (EU) No 1169/2011.[60] 'GM(O)-free' labelled food products must also conform to the rules for positive GM labelling, that is, not contain more than 0.9% GM content and any GM presence below 0.9% must be adventitious or technically unavoidable.[61] This issue is discussed in Section 6.2.4. Animal products are specifically excluded from the EU rules governing positive GM labelling. 'Negative labelling' for animal products is neither forbidden nor specifically regulated, but general food labelling rules apply.

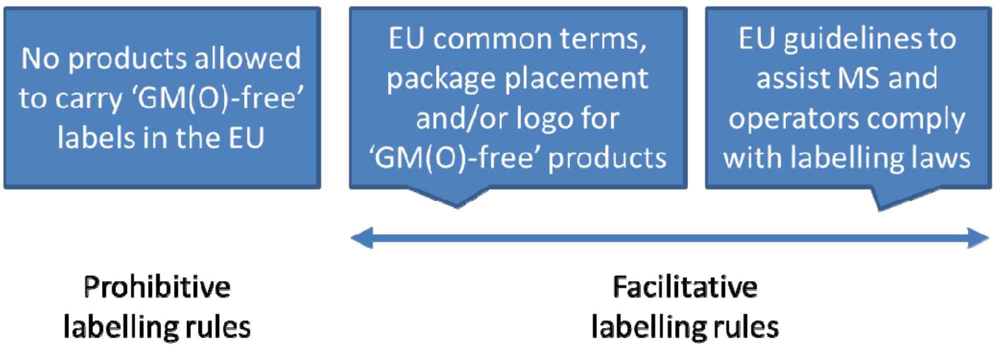
The baseline data show considerable variance across Member States in the approach taken to 'GM(O)-free' labelling (and marketing) in the EU. There are two main considerations for any harmonised approach to labelling:

- The wording that may be used on a product, as well as wording that is not allowed; and
- The use of a logo (or logos).

In this context, there are three main options to consider for labelling requirements in a harmonised scheme (Figure 6.1):

- Prohibitive labelling rules as used in Sweden and Belgium, where products must not carry any 'GM(O)-free' labelling indications but where many products are produced using non-GM supply chains;
- Facilitative labelling rules, as used in Austria, France and Germany. Such rules allow 'GM(O)-free' labels, and cover the wording that may be used on product packaging and other marketing materials; and
- EU guidelines that help Member States and operators comply with EU labelling laws, but which do not specify the wording that may be used or provide a common logo.

Figure 6.1 Options for harmonised rules concerning labelling rules for 'GM(O)-free' products



6.2.2.2 *Evidence and views on labelling rules for GM(O)-free products*

In 2011 the European Commission organised a workshop on food labelling in the context of the High Level Forum for a Better Functioning Food Supply Chain, an EU level forum which encourages the consultation of food chain stakeholders. The workshop on food labelling saw the participation of Member State representatives, the European Commission and food supply chain representatives, including consumers' organisations. The workshop was

[60] Regulation 1169/2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/EC and Commission Regulation (EC) No 608/2004.

[61] Set out in Regulation (EC) No 1829/2003 and Regulation (EC) No 1830/2003.

intended to promote food labelling as a tool to improve consumer information and businesses' competitiveness. Issues concerning food labelling were also discussed. Workshop participants concluded that there is a need to prevent labelling proliferation and excessive market fragmentation. They agreed that more harmonisation is necessary, particularly regarding voluntary food labelling schemes such as GM(O)-free labelling.[62]

An EU level harmonised approach could expand the market for GM(O)-free labelled products in Europe. A potential benefit of introducing an EU-wide GM(O)-free label could include price premiums for operators, which consumers say they are willing to pay for these kinds of products. Studies show that products with claims, particularly those related to nutrition and health, are clearly preferred by consumers (Aschemann-Witzel and Hamm, 2010). A GM(O)-free labelled product might therefore be preferred over an unlabelled equivalent. Currently, however, most products labelled GM(O)-free in the EU are sold at the same price as their conventional equivalents (i.e. 'unlabelled products').

GM(O)-free labels may also affect consumer attitudes towards GM products. For instance, GM(O)-free messages may lead consumers to believe that these products are superior, or reinforce and further emphasise the view that GM products carry risks (Matsumoto, 2004; Siipi and Uusitalo, 2007). Abrams et al. (2010) note that because government regulations on labelling are typically used to distinguish between safe and unsafe foods, the use of standards or food labels can give consumers the impression that other products are unsafe. This argument has also been made in the case of monosodium glutamate (MSG)[63] labelling: a study conducted in Malaysia by Radam et al. (2010) found that MSG-free labelling may influence the acceptability of other products which contain MSG given that such labels can generate and reinforce beliefs that MSG is a harmful and/or unsafe ingredient.

GM(O)-free labels also interact with labelling for organic products. The organic designation provides consumers with a 'GM(O)-free option', although the non-GM aspect of the product is one of a 'package' of qualities that the organic indication confers. Some lessons can be drawn from the experience in the US on rBST-free and organic milk. These two markets successfully co-exist in the US, as do certified pesticide-residue free (CPRF) products and organic products (Bernard and Bernard, 2010). One potential reason why this is the case is that they allow consumers to purchase an attribute that they desire without having to purchase the whole 'package' of attributes, some of which may not be of interest to consumers.

6.2.2.2.1 *Evidence and views on acceptable GM(O)-free labels and other issues*

The research conducted for this study also provides evidence relevant to the design of a standardised label, if one was to be adopted. Simple labels (e.g. which denote the content or absence of a specific attribute) have been found to be more credible than complex labels (e.g. 'natural'). Andrews et al. (2000) found that claims which name a specific substance are thought to be more credible than claims which state that the product is generally healthy.[64] Providing contact information on the label also helps to build credibility with consumers (Teisl et al., 2008).

Survey respondents for this study believe that the words 'GMO-free' and 'fed with GM-free feed' are the two most appropriate labelling formulations (see Figure 6.2 and Figure 6.3):

- 'GMO-free' was preferred by 17 of 29 MS representatives (59%) and 26 of 52 national stakeholders (50%) over other alternatives presented; however, only one out of 10 EU

[62] High Level Forum for a Better Functioning Food Supply Chain (2011), Report on Food Labelling Practices, http://ec.europa.eu/enterprise/sectors/food/files/competitiveness/labelling_report_en.pdf.

[63] MSG is a naturally-occurring non-essential amino acid. It is marketed as a flavour enhancer in foods. It is classified as a food additive in the EU. In the US, it is classified as 'generally recognized as safe' (GRAS).

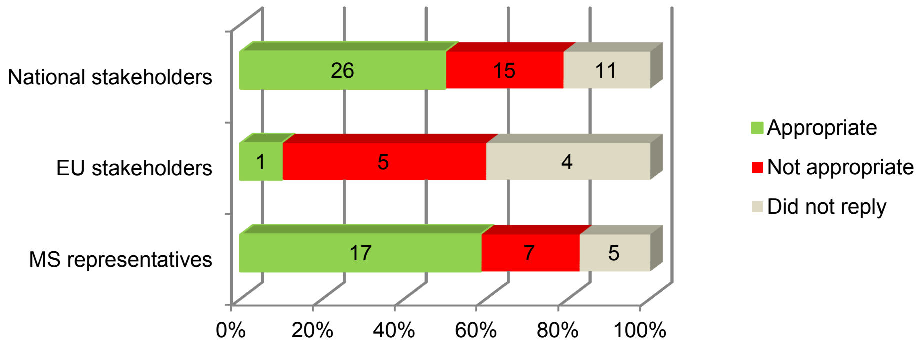
[64] However, even in the case of a relatively straightforward label such as GM(O)-free, consumers also generalise with regard to other characteristics. Past research, for instance, has shown that Austrian consumers assume that products carrying a GM(O)-free label are more sustainable as a whole.

stakeholders preferred such wording (10%), 5 consider it as not appropriate and 4 did not reply; and

- 'Fed with GM-free feed' was preferred for animal products by 12 of 29 MS representatives (41%), 24 of 52 national stakeholders (46%) and none of the EU stakeholders consulted (5 consider it as not appropriate and 5 did not reply) over other alternatives presented.

Figure 6.2 'GMO-free' is the preferred food labelling option

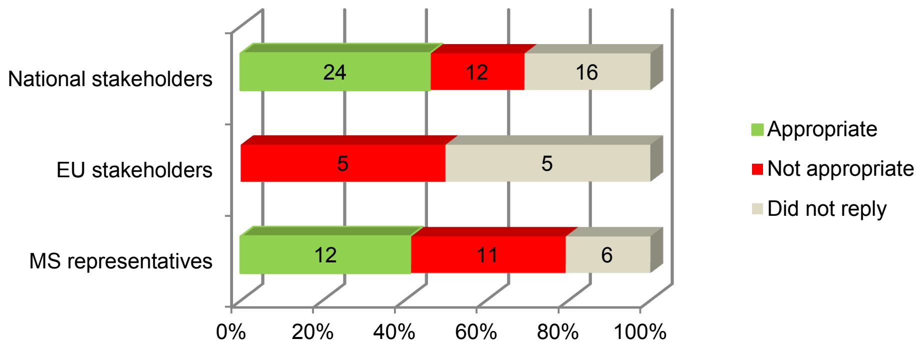
"Do you think that the wording 'GMO-free' is appropriate for a label indicating that the product is "GM(O)-free"?"



Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 6.3 'Fed with GM-free feed' is the most appropriate option for animal products labelling

"Do you think that the wording 'Fed with GM-free feed' is appropriate for a label indicating that the product is "GM(O)-free"?"



Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Views were mixed overall, however, and all of the labelling versions suggested were deemed appropriate and inappropriate by at least five respondents. Table 6.2 shows the response rate for different labelling indications deemed appropriate or inappropriate by MS representatives and national stakeholders.

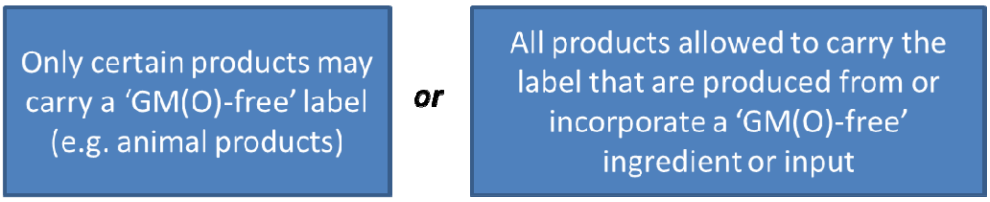
Table 6.2 Potential labelling options and views from respondents as to their appropriateness

	MS Representatives		National Stakeholders	
	Appropriate	Inappropriate	Appropriate	Inappropriate
GM-free	9	11	14	20
GMO-free	17	7	26	15
Prepared without GMO	6	14	13	19
Prepared without gene technology	5	16	11	23
Does not contain GMOs	11	9	12	24
Not genetically modified/engineered	9	10	8	29
Fed with GM-free feed	12	11	24	12

6.2.3 Product scope

Product scope is an important element to consider in a potential EU harmonised approach to 'GM(O)-free' labelling, particularly because the specifications that apply to food products (plant-based products) can differ from those applied to feed (animal-based products). The type of product being labelled can thus affect the specifications for each of the other elements in a harmonised approach. For example, EU labelling law allows the scope of a GM(O)-free labelling scheme to extend in principle to any food product (plant-based product) for which there is a 'GM equivalent' authorised for sale on the market.[65] Animal product labelling is more complicated and a GM(O)-free label may not necessarily depend on whether the animal was fed on non-GM feed for which there is an authorised GM equivalent on the EU market. The scope for GM(O)-free labelling varies widely under private schemes, as discussed in Section 3.2. Figure 6.4 illustrates the range of options to consider for this element of a potential harmonised approach.

Figure 6.4 Options for harmonised rules regarding product scope



The scope would need to cover animal products alone if harmonisation is to be used primarily to satisfy consumer demand for labelling animal products. A wider product scope would be appropriate if the primary objective of harmonisation is to avoid or reduce problems related to an 'uneven playing field' for operators resulting from the current variety of different schemes across the EU.

6.2.3.2 Evidence and views on product scope for GM(O)-free plant-based food products

Respondents to the survey run during this study agreed that the full range of products could be included in a 'GM(O)-free' scheme (vegetables, processed foods, meat and meat products, dairy products, eggs, yeast and other products, etc.). With few exceptions, all MS representatives and national stakeholders who responded to this question indicated that all of these products may be included.

[65] A complete register of authorised GMOs can be found on the DG SANCO website: http://ec.europa.eu/food/dyna/gm_register/index_en.cfm.

Food products containing GM ingredients must already be labelled under EU law. Widespread use of a second label related to the use of GM products and processes alongside existing requirements for positive GM labels may introduce problems. This would effectively create three different product categories:

- One for products that must be labelled as GM (positive labels),
- One for products that may be labelled as GM-free (negative labels), and
- One for products that do not meet the requirements for positive labelling and also do not carry a negative label (unlabelled products).

In the absence of additional information about whether a product is GM(O)-free, consumers typically act as if there is a low probability that products contain GMOs (Noussair et al., 2004). In a mandatory labelling system that requires products containing GMOs to be labelled (positive labelling), consumers assume that the absence of a label (unlabelled products) means a product is 'GM(O)-free' (Federici, 2010). Gruere et al. (2008) find that where there is a mandatory, positive labelling scheme in place, consumers value an unlabelled product differently when the choice set contains three options (unlabelled products, a GM label, and a GM(O)-free label) than when it contains only two options (a GM label and unlabelled products). Consumers attach greater value to an unlabelled product when there is no option to buy an equivalent, voluntarily labelled GM(O)-free product. The value of the unlabelled product is significantly reduced when there is a GM(O)-free product available.

Two studies (Huffman et al., 2002; Dannenberg et al., 2011) provide evidence that US and German consumers are able to correctly read and trust labelling signals when the market contains only one labelled and one unlabelled product. Dannenberg et al (2011) found that the presence of a GM(O)-free label alongside GM labelling and unlabelled products may decrease individuals' trust in the labelling system.

Interviews conducted for this study also found that there is concern amongst some stakeholders and Member State representatives that consumers may be confused by the introduction of a second label at EU level, as it would be unclear what unlabelled products represent. For example, the UK Member State representative indicated that having positive and negative labelling for products could lead to confusion, particularly for unlabelled food products.[66] The introduction of a GM(O)-free label could generate a negative externality for producers of non-GM products who market their products without a label (Dannenberg et al., 2011).

6.2.3.3 Evidence and views on product scope for GM(O)-free labelling for animal products

GM(O)-free labelling for animal products was a primary motivation in the development of schemes in some Member States and by private operators. While EU regulations on GM labelling do not require animal products produced from animals fed on GM feed to carry a positive label, some consumers consider the GM status of the animal feed to be important. For example, a 2009 study found that 78 per cent of people in Germany believed that this aspect should be identified on labels (rising to 82 per cent in 2011). GM(O)-free labels which highlight this issue help to meet demand that is not satisfied by current EU GM labelling legislation and may add significant value to the marketplace.

Demand for GM(O)-free animals products (fresh meat, eggs, milk) is stronger than the demand for GM(O)-free plant-based products in Germany and France (Herrmann et al, 2008; French Survey Efficience, 2009). A survey carried out in October 2010 by IFOP for Carrefour shortly before Carrefour announced its GM(O)-free labelling programme reported that the majority of French people surveyed (76 per cent) felt that it was very important that the presence or absence of GMOs in animal feed should be labelled on animal products. A survey by Efficience 3 (2009) for Loué on French consumers' views of 'non-GM' animal derived food products found that most of those surveyed (76 per cent) were in favour of a

[66] UK case study

GM(O)-free label as they felt that it was unreasonable that those producers choosing to feed their animals on non-GM (<0.9%) feed are unable to communicate this to consumers. A survey conducted in the UK by Gfk/Nop on behalf of Friends of the Earth (2010) found that 66 per cent of individuals would rather buy meat and dairy from animals fed on a non-GM diet. The survey also found that 72 per cent of consumers were willing to pay a price premium of 2p/kg or 0.5p/litre for meat and dairy fed on a non-GM diet.

Moreover, the issue of three product categories (GM labelled, GM(O)-free labelled and unlabelled) does not occur in the case of animal products, which are specifically exempted from rules regarding GM labelling in the EU. Except where GM(O)-free labels are already used, consumers cannot identify animal products produced without the use of GM inputs, such as feed and feed additives. The literature suggests that providing additional information should increase consumption of the commodity if it has a desirable but costly-to-observe characteristic and reduce consumption of a competing commodity with an undesirable characteristic (Kiesel et al., 2005). It is this issue that prompted the development of many of the existing GM(O)-free labelling schemes. An EU harmonised approach to labelling GM(O)-free animal products should not have the same complicated effects as for plant-based products highlighted in Section 6.2.3.2. Nonetheless, it is unclear that any but the most informed consumers are aware of these particularities of GM labelling laws in the EU. Chapter 5 highlights related issues in this regard.

6.2.4 Threshold levels for adventitious or technically unavoidable presence

The legislative framework for GM labelling specifies conditions for EU harmonised ‘positive labelling’ at >0.9% authorised GM presence. ‘Positive labelling’ is not required for food and feed containing authorised GM material at <0.9%, *provided that this presence is adventitious or technically unavoidable*. The 0.9% limit for authorised GM presence refers to the ‘labelling threshold’ established by the GM legislation.

The 0.9% limit for authorised GM presence also applies for organic production in the EU under Regulation (EC) No 834/2007, which prohibits the use of GMOs in organic production. The labelling threshold represents a ceiling which is exclusively linked to adventitious or technically unavoidable presence of GMOs. The organic production threshold level is thus the same as that established by EU positive GM labelling legislation, but the organic Regulation establishes that producers should aim to have the ‘lowest possible presence of GMOs’ in organic products. National organic labelling schemes are based on the requirements established at EU level, but can go beyond such requirements by setting stricter rules. For example, in the UK the Soil Association organic standards have set a <0.1% threshold (Soil Association, 2012).

The EU’s 0.9% threshold for authorised GM presence is one of the lowest set by countries which require mandatory labelling of authorised GM products. Japan, for instance, has a 5% threshold (Federici, 2010). Table 6.3 shows a selection of national mandatory (positive) labelling thresholds.

Table 6.3 Mandatory labelling threshold levels for authorised GM content, various countries

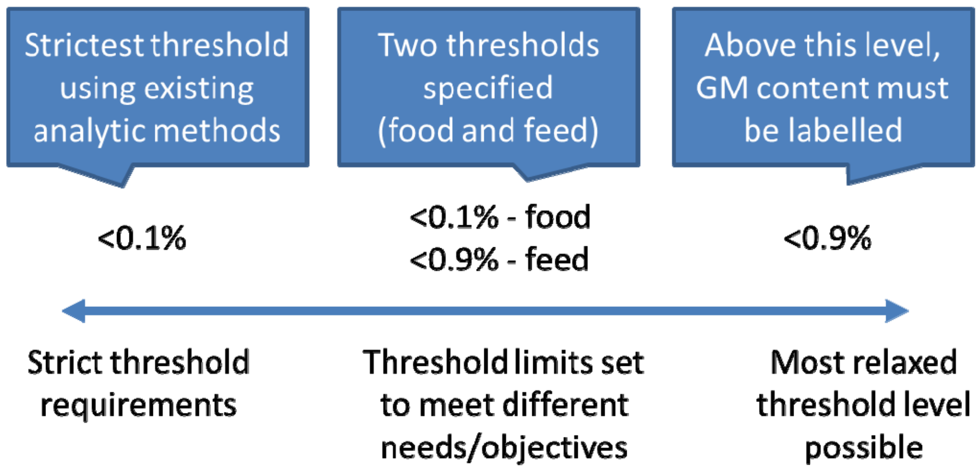
Country	Level
EU	0.9%
Russia	0.9%
Saudi Arabia	0.9%
Brazil	1%
Australia-New Zealand	1%
South Korea	0 – 3%
Japan	5%
Indonesia	5%
Taiwan	5%
Thailand	5%

Source: IFPRI (2007); USDA FAS (2012) various.

When establishing such thresholds in the EU, it is necessary to take into account the principle that information conveyed through food labelling must not mislead consumers, including when information is related to threshold levels. This principle is established by Article 2 of Directive 2000/13/EC on food labelling, which states that labelling must not mislead purchasers 'as to the characteristics of the foodstuff and, in particular, as to its nature, identity, properties, composition, quantity, durability, origin or provenance, method of manufacture or production'.

Analytical methods are available that can reliably quantify authorised GM presence to 0.1%. As a result, there is a theoretical range of threshold levels for adventitious or technically unavoidable GM presence in a 'GM(O)-free' labelling scheme between 0.1% and 0.9%. GM(O)-free schemes currently operating in the EU have taken a range of approaches to the threshold level, which can also vary depending on whether it applies to food or feed. Figure 6.5 illustrates the range of options to consider for this element of a potential harmonised approach.

Figure 6.5 Options for harmonised rules regarding threshold levels for authorised GM presence



The *status quo* approach for this element would mean that the harmonised rules did not specify a threshold level.

6.2.4.2 *Evidence and views on threshold levels for adventitious or technically unavoidable GM presence*

The Dutch Commission on Genetic Modification (2004) conducted research on the possibilities for GM(O)-free production chains. As part of this research, focus groups were

asked to consider GM(O)-free claims. Although participants thought that any GM presence was not in line with what consumers expect of GM(O)-free products, they understood the practical problem of achieving a zero-level of contamination and accepted the <0.9% threshold level, although they found it arbitrary and misleading (de Vriend, 2004).

Herrmann et al. (2008) and Henseleit et al. (2009) found that consumers consistently assume standards of purity for products labelled as GM(O)-free that are higher than those applied by existing GM(O)-free labelling schemes. Some stakeholders interviewed for this study believe that GM(O)-free labels are misleading as they suggest a level of purity, or a complete absence of GMOs, that may not be possible given the risk of contamination and the difficulties in testing and verifying that a product is actually free from GMOs. This issue can be dealt with either by looking at the wording used, or by retaining the 'GM(O)-free' wording but setting a very low (or zero) threshold for permissible GM content.

The UK Government has stated that if an operator wishes to implement a GM(O)-free labelling scheme the product should be completely GM(O)-free, with no threshold limits or exceptions so the consumer can be absolutely confident of what 'GM(O)-free' means. Sweden has restricted the use of GM(O)-free labelling for the same reasons. Swedish legislative guidance specifically states, for example, that labelling cooking oil as 'GM(O)-free' is misleading since products produced or processed with GMOs must be declared as such under EU law. As a result, labels indicating that something is 'free' can only be used with respect to nourishment and allergic ingredients (such as gluten or nuts). Product marketing in Sweden can, however, include an indication that no GMOs were used in its production (National Food Agency, 2011).

In the survey conducted for this study respondents were asked whether they believe that only products that do not contain or are not produced using GMOs can be labelled as 'GM(O)-free'. A majority of Member State representatives agreed (16 MS representatives answered 'yes',11 'no' and 2 did not reply). Five EU stakeholders answered 'yes' or noted that 'there should be no element of GM technology at any stage of production of 'GM(O)-free' labelled products'.[67] Four EU representative associations said 'no' [68] and one did not reply.

National stakeholder views were evenly split, with half of those who provided a reply in favour and half against (22 said 'yes' and 24 said 'no'; 6 did not reply).

The majority of retailers (3 out of four) and of producer organisations at national and EU level (13 of 15) said 'no' while all consumer organisations (4 of 4) said 'yes'. Other groups, including NGOs, food processors/manufacturers and other food sector representative groups were more evenly split. The reasoning behind the two positions can be summarised as follows:

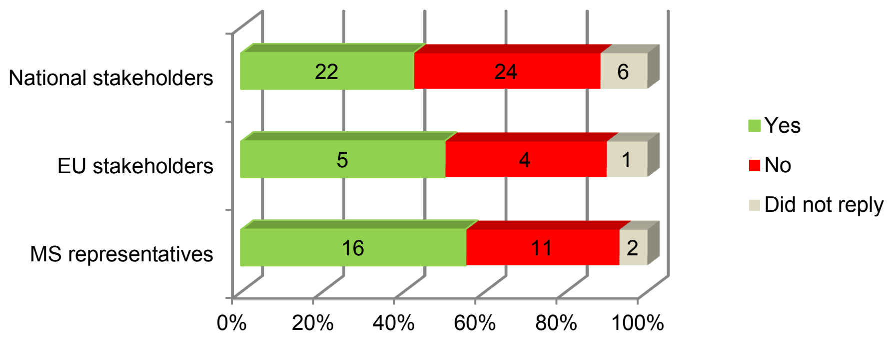
- Yes: Having a threshold level for adventitious GM content as an element of a 'GM(O)-free' label (i.e. allowing some GM content, however small) misleads the consumer; or
- No: It is too difficult and costly or it is not technically feasible to be assured of 'zero' GM content, therefore allowing for adventitious or unavoidable presence in products or product inputs is necessary to enable GM(O)-free labels to be used.

Survey responses are summarised in Figure 6.6 and Figure 6.6.

[67] Europabio, a representative association for the biotechnology sector, FoodDrinkEurope, the EU Vegetable Oil and Proteinmeal Industry association (Fediol), the European Starch Industry association (AAF) and the European Association of Manufacturers, Distributors and users of Vegetable Proteins for Human Consumption (Euvepro).

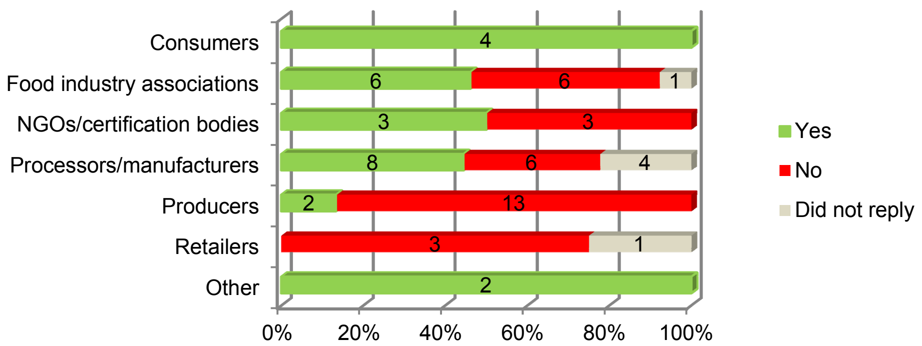
[68] The Association of Manufacturers and Formulators of Enzyme Products (Amfep), the European Association of Sweet Corn Processors (AETMD), the European Food and Feed Cultures Association (EFFCA) and EuroCoop.

Figure 6.6 Do you believe that only products which contain no GMO, or are not produced with/from GMO, can be labelled as 'GM(O)-free'?



Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 6.7 Do you believe that only products which contain no GMO, or are not produced with/from GMO, can be labelled as 'GM(O)-free'? Sectoral views



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

There is variation in the threshold levels for GM presence set by different GM(O)-free labelling schemes in the EU, particularly for animal products (see Section 3.7). Whilst a high threshold level is more practical and requires fewer resources to enforce, GM(O)-free claims are less credible to consumers when the threshold is high. Hastak and Mazis (2011) report that this kind of claim can create semantic confusion whereby the language used causes consumers to misperceive or miscomprehend the claim and thus be misled. The point at which consumers lose confidence in the label will depend on the level of GM content that is considered material to consumers (Federici, 2010). For example, when the US Food and Drug Administration proposed a threshold level for gluten-free food of 20 ppm, many US consumers urged government to set a stricter limit of 5ppm, indicating that consumers still considered 20 ppm to be too low (Smith, 2012).

Past research has shown that an increase in the threshold level for adventitious presence affects both the supply and the demand sides of the market by reducing the production and segregation costs in the non-GM supply chain as well as consumer valuation of GM(O)-free food. Giannakas et al. (2011) conducted a study which looked specifically at consumer responses to different GM(O)-free threshold levels in the EU. They found that in light of the expressed level of consumer aversion, it is likely that low threshold levels will not be tolerated by consumers.

Both the presence and absence of national law on thresholds can create issues in the market. Some of the stakeholders in France who were interviewed for this study were concerned about the threshold levels (<0.1% and <0.9%) in the recent French legislation. Some thought the two levels (<0.1% and <0.9%) were included to please the many and opposing stakeholders engaged in the non-GM food production debate. In Italy, some issues

have arisen for operators attempting to make GM(O)-free claims as national law does not provide any guidance on this matter (see box below).

Example of a court decision on a GM(O)-free label in Italy

Soy steaks labelled as GM(O)-free were found to contain traces of GM material, albeit at levels well below the 0.9% threshold level. Both distributors and producers were sued for food fraud by the Italian anti-fraud enforcement authority 'Nuclei antisofisticazioni e sanità'(NAS) . The Turin Ordinary Court acquitted the defendants on charges of food fraud but the court found that the defendants had committed an administrative offence[69] by applying misleading advertising (i.e. the GM(O)-free label), which could have rendered the product 'improperly appealing' to consumers (Sentence n. 3164 dated 06.03.2004).

6.2.4.2.2 *Threshold levels for 'GM(O)-free' food products*

There are many precedents for labels that are used by consumers in their purchasing decisions which use the phrase 'free from' or '-free' where the labelling scheme incorporates purity thresholds for products. Examples of EU and US regulations that have set different threshold levels for various 'free' products are provided in Table 6.4.

Table 6.4 Threshold levels set for products labelled as '-free' in the EU and the US

Claim	EU	US
Sugar-free	Less than 0.5 g of sugars per 100 g or 100 ml	Less than 0.5 grams (g) per serving
Sodium / salt-free	Less than 0.005 g of sodium, or the equivalent value for salt, per 100 g	Less than 5 milligrams (mg) per serving
Fat-free	Less than 0.5 g of fat per 100 g or 100 ml. Claims expressed as 'X % fat-free' are prohibited	Less than 0.5 g of fat per serving
Cholesterol -free	N/A	Less than 2 mg of cholesterol and 2 g or less of saturated fat per serving
Saturated fat-free	The sum of saturated fat and trans-fatty acids does not exceed 0.1 g of saturated fat per 100 g or 100 ml	Less than 0.5 g of saturated fat per serving and less than 0.5 g trans fatty acids per serving
Calorie-free	N/A	Fewer than 5 calories per serving
Gluten free	No more than 20 mg/kg of gluten	Proposed levels of no more than 20 ppm or more gluten

Source: FDA (2007); EC (2009); Kurtzweil (1995)

According to the US FDA, the definition of a food 'free' from a certain substance means the product either contains no amount or only a trivial or 'physiologically inconsequential' amount of the attribute (UNT, undated). Consumers seem to accept this as they continue to buy these products, even though there is evidence that some consumers find these claims to be misleading (e.g. in the case of 'fat free' products) and consistently estimate that the actual levels of these dietary components in the product are lower than the threshold limits (Chan, 2005; Resnick, 1998).

Noussair et al. (2004) considered whether consumers perceive a difference between two different (hypothetical) threshold levels – 0.1% and 1%. They found that consumers viewed a hypothetical 0.1% threshold level as different from a GM(O)-free guarantee. Despite this, there was no difference in consumers' willingness to pay for a product with a 0.1% limit and a 'GM(O)-free' product, suggesting that consumers would accept this level of GM content. But a hypothetical 1% threshold level resulted in a significant 10% reduction in willingness to pay for the product (Noussair et al., 2004). Nonetheless, the majority of participants (89%) were willing to purchase a product satisfying the 1% level, whilst lowering the limit to 0.1%

[69] Pursuant to Decree Law 109/92 on Food Labelling

meant another 7% of participants were willing to purchase the product. Similarly, Giannakas et al. (2011) found that an increase in the adventitious presence level reduced the price of GM(O)-free products.

6.2.4.2.3 *Threshold levels for 'GM(O)-free' animal product inputs (feed)*

There are few precedents for the use of threshold levels in the feed inputs to animal products beyond those required under organic legislation and positive GM labelling rules in the EU (see section 6.2.4). A relevant example is the USDA Process Verified Program for marketing claims on animal products that do not contain antibiotics or animal by-products. In these cases, a threshold as such does not apply, as all animals must be fed on feed that does not contain the specified substances from birth to slaughter.

6.2.5 Input specifications and exceptions

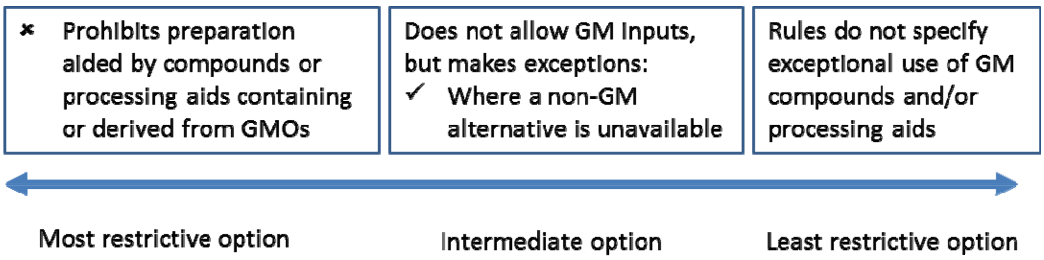
There are several categories of inputs to food production that can utilise GM plants or microorganisms. The EU has to date authorised GM cotton, maize, potato, microorganisms, oilseed rape, swede-rape,[70] soybean and sugar beet for food, feed and other uses in the EU. In addition to the direct use of GM plants and their products for food and/or feed production, GM plants may be used to produce additives for food and/or feed. There are also veterinary pharmaceuticals which are produced using modern biotechnology. Use of these GM inputs is specifically prohibited from most 'GM(O)-free' schemes operating in the EU. Some exceptions to these rules are granted as discussed below.

6.2.5.1 *Exceptions to the use of GM processing aids / compounds for plant-based food products*

Vitamins, enzymes and amino-acids used in food processing are often produced by genetically modified micro-organisms. They cannot be used in organic production although the Regulation on organic production foresees the possibility of the Commission providing exceptions to the prohibition when it would be necessary to use food and feed additives and other substances where a non-GM equivalent is unavailable. The Commission has not granted any such exception so far.[71]

Figure 6.8 illustrates potential options for a harmonised approach to this element for the input categories related to plant-based food products. The most restrictive approach would follow the example provided by the Netherlands where no GM inputs are allowed under any circumstances. The least restrictive approach is the *status quo* scenario in which harmonised rules do not specify whether exceptional use of GM inputs to food production are allowed.

Figure 6.8 Options for harmonised rules regarding the use of GM processing aids / compounds



6.2.5.2 *Evidence and views on the use of GM processing aids / compounds for plant-based food products*

Most respondents to the survey conducted for this study indicated that a successful harmonised EU scheme should not allow preparation aided by compounds or processing aids containing or derived from GMOs (17 of 29 MS representatives (59 per cent), 37 of 52

[70] *Brassica naplis* L.

[71] http://ec.europa.eu/agriculture/organic/files/eu-policy/expert-recommendations/1_EN_ACT_part1.pdf

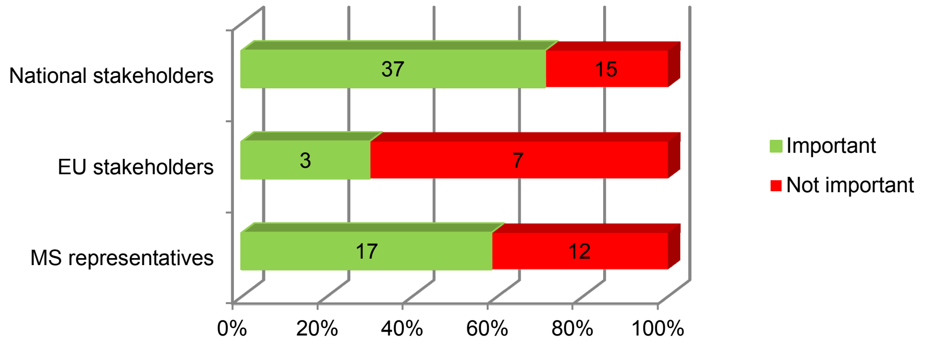
national stakeholders (71 per cent) and 3 of 10 EU stakeholders (30 per cent)). Less than 30 per cent of all respondents felt that exceptions should be allowed for additives and enzymes where non-GM alternatives are unavailable.[72] Survey responses are summarised in 0 and Figure 6.11.

[72] Sectoral stakeholders at national and EU level who answered 'yes' included 7 producer organisations, 3 NGOs, 3 food processors/manufacturers, 1 retailer, 1 consumer organisation and 2 food sector organisation.

Figure 6.9 Elements of a successful harmonised scheme – does not allow preparation aided by compounds or processing aids that contain or are derived from GMOs

"Is the following requirement important to ensure the scheme's success?

Requirement: the scheme does not allow preparation aided by compounds or processing aids that contain or are derived from GMOs"

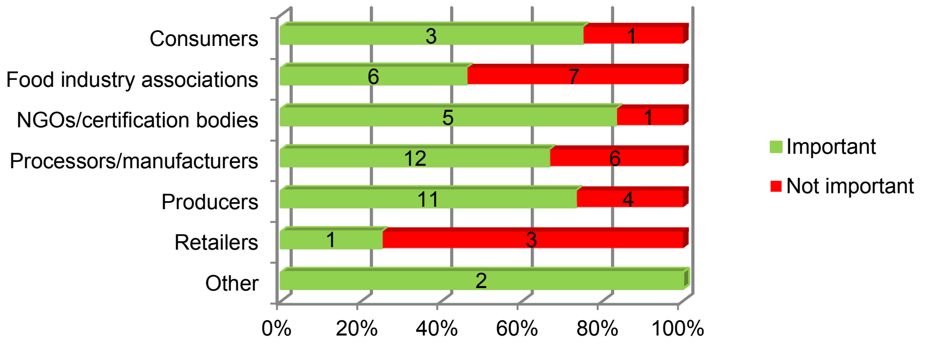


Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 6.10 Elements of a successful harmonised scheme – does not allow preparation aided by compounds or processing aids that contain or are derived from GMOs, views by sector

"Is the following requirement important to ensure the scheme's success?

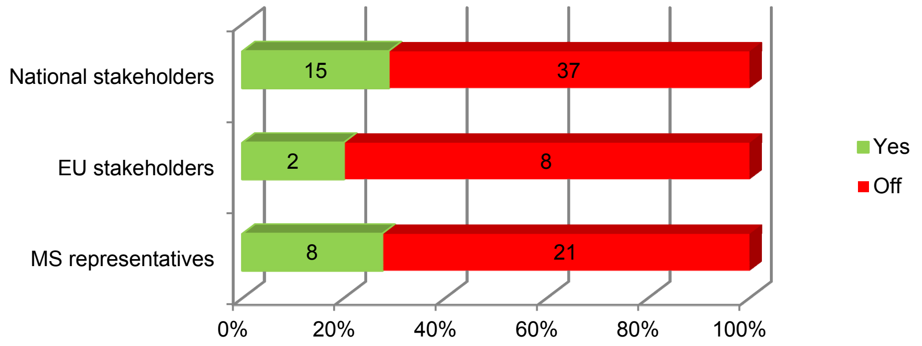
Requirement: the scheme does not allow preparation aided by compounds or processing aids that contain or are derived from GMOs"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

Figure 6.11 Elements of a successful harmonised scheme – allowing for exceptions (additives or enzymes)

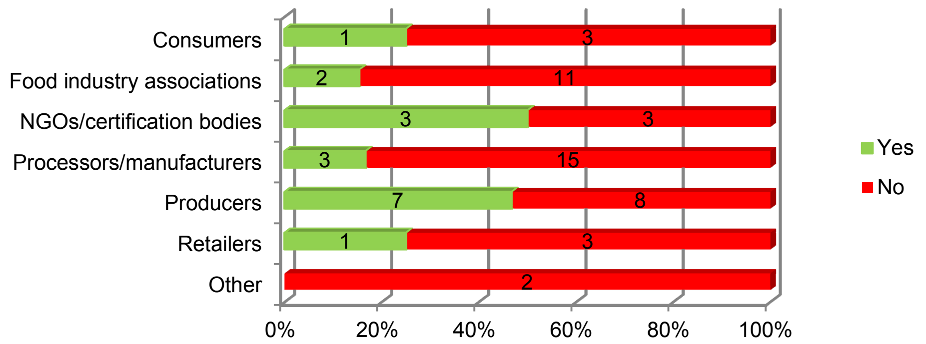
"Should the label allow for exceptions for certain additives or enzymes where a non-GM alternative is not available?"



Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 6.1 Elements of a successful harmonised scheme – allowing for exceptions (additives or enzymes), views by sector

"Should the label allow for exceptions for certain additives or enzymes where a non-GM alternative is not available?"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

6.2.5.3 Exceptions to the use of GM inputs for the production of animal products

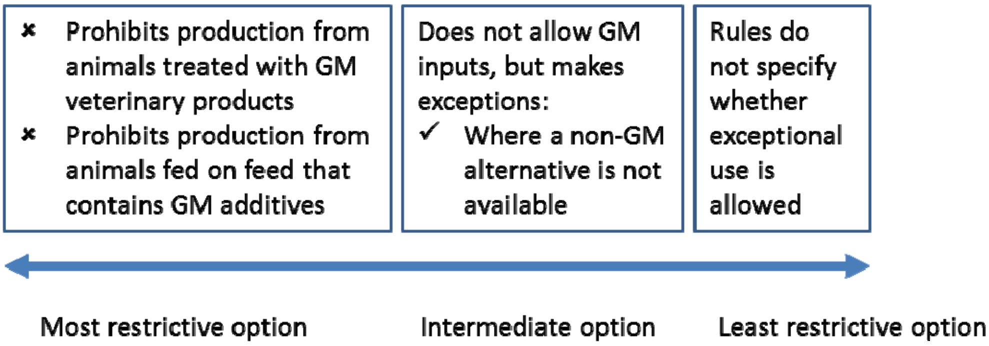
GM(O)-free animal products under most public and private schemes in the EU must be produced without the use of GM inputs, including veterinary pharmaceuticals and feed additives. Certain exceptions may be applied, such as the use of veterinary products produced using modern biotechnology when a non-GM equivalent is unavailable. The following exceptions are also provided for in the EU organic regulation:

- Use of GM veterinary pharmaceuticals:
  - Organic production should be based on methods that exclude the use of GMOs and products produced from or by GMOs with the exception of veterinary medicinal products (Regulation (EC) No 834/2007, Article 4 (a)(iii)).
  - The use of chemically synthesised allopathic veterinary medicinal products or antibiotics for preventive treatment is prohibited (Regulation (EC) No 889/2008, Article 23).

  - Chemically synthesised allopathic veterinary medicinal products or antibiotics may be used if the use of measures including phytotherapeutic, homeopathic products and trace elements is ineffective, and if treatment is essential to avoid animal suffering or distress (Regulation (EC) No 889/2008, Article 24).
- Use of GM feed additives is restricted to cases involving essential technological or zootechnical needs or for particular nutritional purposes (Regulation (EC) No 834/2007, article 7).

Figure 6.2 illustrates potential options for a harmonised approach to this element for the input categories related to animal products. The most restrictive approach would not allow GM inputs under any circumstances. The least restrictive approach is the *status quo* scenario in which harmonised rules do not specify whether exceptional use of GM inputs to animal product are allowed.

Figure 6.2 Options for harmonised rules regarding inputs to GM(O)-free animal production



6.2.5.4 *Evidence and views on the use of GM inputs for the production of animal products*

A majority of respondents to the survey conducted for this study indicated that the scheme should not allow production from animals where GM additives are used. But rules that do not provide for exceptions would greatly restrict use of a GM(O)-free label, as is currently the case in the Netherlands.

Views on prohibiting 'GM(O)-free' production from animals treated with veterinary products made from modern biotechnology where non-GM alternatives exist were more mixed: 8 of 29 MS representatives (28 per cent), fewer than half of national stakeholders (23 of 52, or 44 per cent) and less than one third of EU stakeholders (3 of 10) considered this an important element.

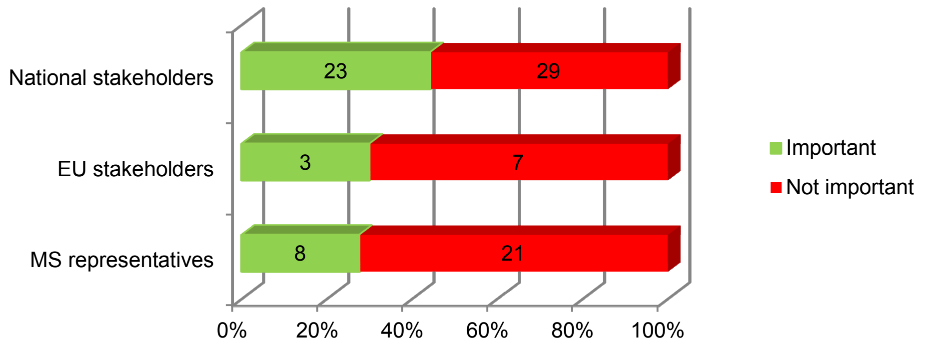
Respondents were also asked whether any exceptions should be allowed where non-GM alternatives are unavailable. Forty-one per cent of MS representatives, 42 per cent of national stakeholders and 20 per cent of EU stakeholders felt that GM veterinary pharmaceuticals should be allowed when non-GM alternatives are unavailable.[73] Survey responses are summarised in Figure 6.3 and Figure 6.5.

[73] In terms of the sectors represented, approximately half of the responses across different sectors were in favour of this exception, but processors/manufacturers mostly were not (only 1 of 9 answered 'yes').

Figure 6.3 Elements of a successful harmonised scheme – does not allow production from animals treated with GM veterinary pharmaceuticals

"Is the following requirement important to ensure the scheme's success?

Requirement: the scheme does not allow production (including meat, dairy, eggs, etc.) from animals treated with veterinary products produced with modern biotechnology where non-GM alternatives exist"

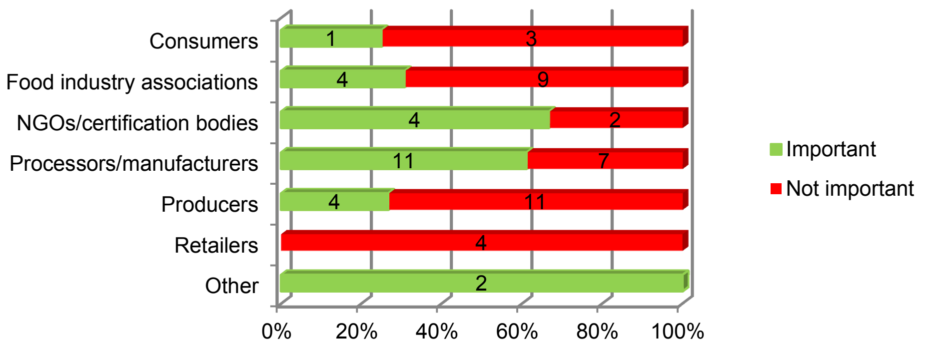


Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 6.4 Elements of a successful harmonised scheme – does not allow production from animals treated with GM veterinary pharmaceuticals

"Is the following requirement important to ensure the scheme's success?

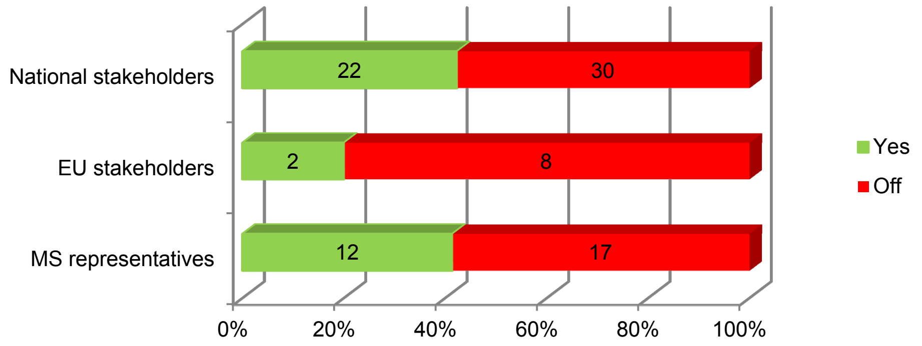
Requirement: the scheme does not allow production (including meat, dairy, eggs, etc.) from animals treated with veterinary products produced with modern biotechnology where non-GM alternatives exist"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

Figure 6.5 Elements of a successful harmonised scheme – exceptions for the use of GM veterinary pharmaceuticals

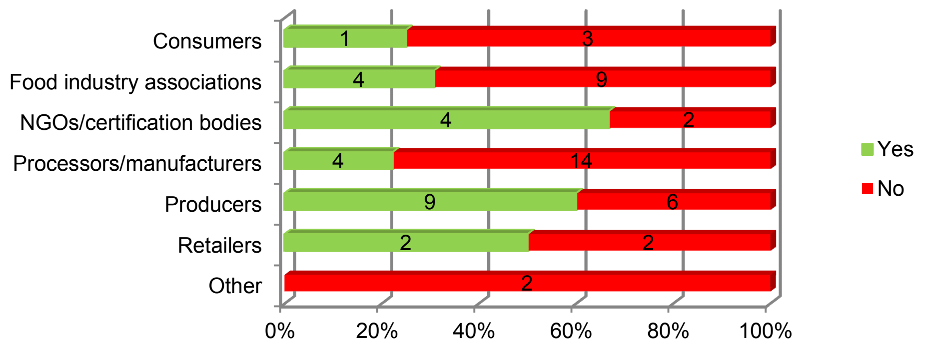
"Should the label allow for exceptions for GM veterinary pharmaceuticals where a non-GM alternative is not available?"



Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

Figure 6.6 Elements of a successful harmonised scheme – exceptions for the use of GM veterinary pharmaceuticals

"Should the label allow for exceptions for GM veterinary pharmaceuticals where a non-GM alternative is not available?"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

6.2.6 Minimum non-GM feeding times for animals

Process-based approaches to assuring 'GM(O)-free' status have been adopted for GM(O)-free labelling schemes involving animal products. Animal products are specifically excluded from the rules governing positive GM labelling set out in Regulation (EC) No 1829/2003 and Regulation (EC) No 1830/2003 on GM food and feed. 'Negative labelling' for animal products is neither forbidden nor specifically regulated, but general food labelling rules apply. GM presence cannot be detected through analytic methods in the final product, therefore, where negative labelling schemes have been developed for animal products, process-based approaches to assuring 'GM(O)-free' status have been adopted.

The baseline data demonstrate that where Member States have regulated GM(O)-free labelling, minimum non-GM feeding times for animals vary with respect to:

- The amount of time that animals must be fed on non-GM feed;

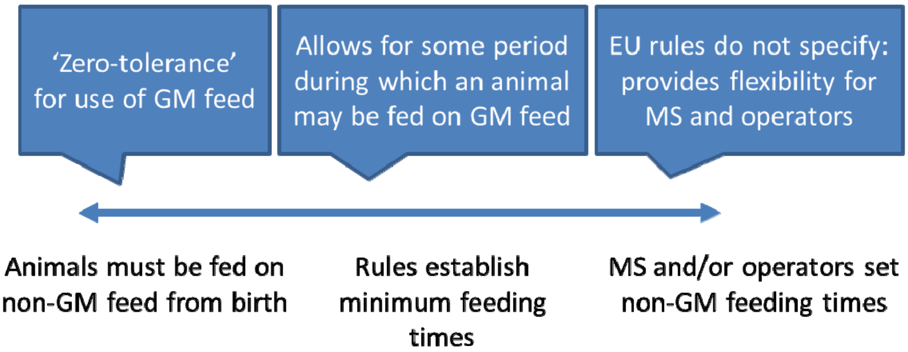
- The type of product/animal species covered; and
- The way in which the non-GM feeding time is specified (i.e. as the time from birth, the time from production/slaughter, or the total period of fattening during which non-GM feed must be used).

There are three main options to consider for minimum non-GM feeding time requirements in an EU harmonised GM(O)-free scheme:

- A requirement that all animals must be fed on non-GM feed from birth – the strictest approach and the one used by most private operators and the Netherlands;
- Requirements that vary by species, which allow for some period of feeding on GM feed, but harmonise practice across Member States in terms of the length of time that non-GM feed must be used before slaughter/production; and
- The EU rules do not specify minimum non-GM feeding times and so provide flexibility for Member States and operators to apply their own rules.

Figure 6.7 illustrates the options identified for this element.

Figure 6.7 Options to consider for minimum non-GM feeding times for animals



Rules governing use of animal feed have been established for food which is sold in the EU as organic. EU organic labelling rules (Regulation (EC) No 834/2007) require livestock to be fed with organic feed which should come from the farm itself or from other organic holdings in the same region. The use of non-organic feed must be authorised for use in organic farming by the European Commission. Animal products can only be sold as organic (Regulation (EC) No 834/2007) if they come from animals fed with organic feed for at least:

- 12 months in the case of equidae and bovines for meat production, and in any case at least three quarters of their lifetime;
- Six months in the case of small ruminants, pigs and animals for milk production;
- 10 weeks for poultry meat production, introduced before they are three days old; and
- Six weeks in the case of poultry for egg production.

6.2.6.2 *Evidence and views on the use of GM inputs for the production of animal products*

Research suggests that many consumers assume that a 'GM(O)-free' label on an animal product indicates that the animal has never been fed on GM feed. For instance, research has shown that 60 per cent of UK consumers expect that animals are fed on non-GM feed from birth, not only during the period of fattening (FSA, 2012). Survey responses for this study indicate a preference for non-GM feeding from birth, rather than providing for minimum non-GM feeding periods before slaughter/production: only 6 of 24 MS representatives (25

per cent) and 7 of 51 national stakeholders (13 per cent) felt that minimum non-GM feeding periods should be included.[74]

In the US, the USDA Process Verified Program (USDA, 2004) sets the requirements related to marketing programmes for agricultural products. Such requirements include the rules for marketing claims for animal products, such as 'No Antibiotics' or 'No Animal By-Products'. Producers can apply to the USDA Process Verified Program and have their quality management system audited by the USDA. If the requirements set by the USDA are met, operators can use negative claims alongside with the label 'USDA Process Verified' on their products. In the case of meat products, examples of requirements for negative claims are presented in Table 6.5. The listed negative claims can only be used if the animal has not been fed with the specified substances from birth to slaughter; therefore no minimum feeding times are set.

Table 6.5 USDA Process Verified Program 'Never Ever 3'

Claim	Requirement
No Antibiotics – Never Ever	No antibiotics can be administered whether through feed, water, or by injection, from birth to slaughter. Exceptions are foreseen for a specific type of antibiotics (ionophores used as coccidiostats for parasite control).
No Growth Promotants – Never Ever	The administration of growth hormones, including natural hormones, synthetic hormones, estrus suppressants, beta agonists, or other synthetic growth promotants is prohibited from birth to slaughter.
No Animal By-Products – Never Ever	Mammalian and avian by-products are not allowed in the feed. These by-products include animal waste (e.g. poultry litter) and by-products derived from the slaughter/harvest process including meat and fat. Fish by-products and vitamin and mineral supplementation are permissible.

Source: USDA 2009

6.2.7 Certification, controls and monitoring

Certification allows operators to demonstrate to other operators and to their customers that they meet certain standards. Certification refers to inspections of an individual scheme member against the agreed standards for that scheme. Inspections are conducted by an authorised certification body. Inspection and monitoring procedures are used to check that scheme standards are met in practice.

Certification, inspection and monitoring requirements could be incorporated into harmonised rules for 'GM(O)-free' labelling under two conditions:

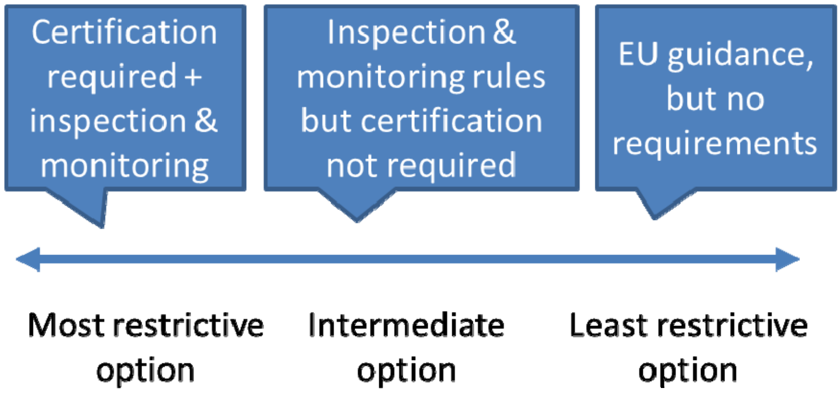
- If harmonised 'GM(O)'-free legislation is put in place at EU level, the legislation:
  - Could require that these claims are backed by certification provided by certification bodies accredited to the European standard EN 45011 or ISO/IEC 17065:2012. This is the approach taken, for example, in Regulation (EC) No 510/2006 on the protection of geographical indications and designations of origin, or
  - Could be silent on certification requirements.

  Inspection and monitoring procedures could also be specified.
- The Commission could choose to provide guidelines on certification approaches for Member States and private operators to follow or to make no mention of certification approaches. Guidance on inspection and monitoring procedures could also be included.

If prohibitive legislation is chosen, certification approaches would not need to be specified. Figure 6.8 illustrates the options identified for this element.

[74] National stakeholders who answered 'yes' include 3 producer organisations, 1 NGO, 1 retailer and 2 food sector organisations.

Figure 6.8 Options to consider for certification, inspection and monitoring rules



Governments typically do not provide certification themselves, but rather delegate these responsibilities to certification bodies approved by accreditation services that meet European standard EN 45011 or the International Organization for Standards ISO/IEC 17065:2012 ‘Conformity assessment -- Requirements for bodies certifying products, processes and services’. Rules on the organisation and operation of accreditation of bodies performing conformity assessment activities in the EU are defined in Regulation (EC) No 765/2008.

Inspections and monitoring may include self-controls by the operators themselves, oversight by certification bodies, and/or checks by public authorities. In the case of organic production, Member States are responsible for setting up a system of controls and designate the competent authorities responsible for controls in conformity with Regulation (EC) No 882/2004 on Official Controls and with Council Regulation (EC) No 834/2007 on organic production and labelling. The competent authority can delegate control tasks to accredited control bodies.

6.2.7.2 *Evidence and views on certification, inspection and monitoring rules*

A study conducted by Soregaroli and Boccaletti (2003) on consumers’ acceptance of GM food products in Italy found that consumers’ perception of the reliability of a GM(O)-free food label depends mostly on the presence of an external certifying institution. Almost 30 per cent of respondents trusted the government to control the certification system, while the share of respondents who would trust a brand or a store was much smaller. Almost 20 per cent of the sample declared they would never trust such labels.

The literature suggests that monitoring and enforcement procedures are also very important for increasing consumer confidence in a product. A framework for compliance is crucial to assure consumers that the information provided on a label is truthful and not misleading (Einsiedel, 2001), even for a voluntary labelling scheme. This is difficult when the label relies on an audit trail rather than tests.

Most consumers and organisations advocating for labelling in Germany, India and the UK prefer a product-based labelling approach instead (Einsiedel, 2000; Miles et al., 2005; Bansal et al., 2007 in Henseleit et al., 2009). Proponents of product-based regulations argue that this approach benefits consumers because it results in an increased variety of ‘GM(O)-free’ products on the shelves. This is due to the fact that product-based labelling standards are easier both to comply with and control compared to process-based labelling standards (Gruere and Rao, 2007). Those who favour process-based controls, on the other hand, argue that consumers expect a ‘GM(O)-free’ labelled product to have been produced without any form of genetic engineering throughout the production process. Accordingly, ‘GM(O)-free’ labels are only beneficial for consumers if they provide this kind of information (Henseleit et al., 2009).

6.3 Interplay with and added-value compared to PDO/PGI and organic labelling

The assessment of elements that could comprise a harmonised EU approach to GM(O)-free labelling should consider the interplay with, and added-value compared to, other EU level labelling schemes including PDO/PGI and organic labelling.

6.3.1 PDO/PGI

The EU introduced a system to protect and promote traditional and regional food products in 1992. It was inspired by existing national systems such as the French AOC (Appellation d'Origine Contrôlée) and the Italian DOC (Denominazione d'Origine Controllata) both used in the wine industry. Regulation (EC) No 510/2006 protects specific product names which can be proven to be linked to territory or to a method of production.

The protection given to geographical indications[75] at international level is considerably enhanced by the TRIPS Agreement.[76] The EU has further consolidated this protection with the rationale that quality products are protected from the misleading use of their geographical names on other products, which could confuse consumers. If not protected, the Commission argues that the value of such products can be eroded and consumers short-changed.[77]

In order to carry a geographical indication, the applicant for the indication must establish the link between the product and the geographical area to demonstrate why a product is associated with one particular area and not another. The specification or technical file must show how the characteristics of a particular region affect a product in a way that other regions cannot. This means that evidence must be provided regarding how the soil type, topography, climate/microclimate, vegetation, etc. influence the final product. Proof of local know-how and production skills strengthen the connection between the geographical area, the quality product and the community.

The EU Regulation on protected food names does not mention any 'GM(O)-free' requirements and applicants for the designation are not prohibited from stating that their production processes or ingredients are 'GM(O)-free'. Rather, EU law provides eligibility guidelines for potential applicants with an emphasis on proving the specific unique qualities intrinsic in the product or the traditional methodology used to produce the product. Applicants may specify GM(O)-free features as part of the link between the geographical area, production methods and the quality product. General food labelling laws under Directive 2000/13/EC apply. Some French cheeses currently include a non-GM component to their designation as described in Chapter 3.

6.3.2 Organic

In contrast to PDO/PGI designations in the EU, organic products do require a 'GM(O)-free' production process. In this context, it is important to consider whether a stand-alone GM(O)-free label is necessary given the presence and availability of organic products. Gifford and Bernard (2008) suggest that there is value in a separate GM(O)-free market, although it is likely to be much smaller than the organic market.

The importance of an organic versus GM(O)-free label to consumers may vary depending on the product, and customers may value particular organic attributes more than others. For example, for some organic products the issue of pesticide-avoidance is most valued by consumers, whilst in other cases the lack of GMOs is valued most highly (Bernard and Bernard, 2010). A public consultation undertaken by DG AGRI in 2013 found that the 'GM(O)-free' attribute was the second most important feature of organic products, behind

[75] Geographical Indications are covered by the following: Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), and Traditional Speciality Guaranteed (TSG).

[76] The Agreement on Trade-Related Aspects of Intellectual Property Rights.

[77] Paragraph taken from the "Fact Sheet" issued by the European Commission Directorate-General for Agriculture and Rural Development

concern about the environment (80.8% of respondents choose organic because of its 'GM(O)-free' quality, while 82.5% of respondents choose organic because of concern about the environment).[78] The GM(O)-free attribute was ranked slightly higher than avoiding foods with pesticide residues (79.8%).[79]

The opportunity to purchase a product with a single additional desirable attribute may be particularly attractive if the product is slightly cheaper than the organic alternative, even if it is still more expensive than the conventional product. For instance, Bernard and Mathios (2005) found that the premium for organic milk is $0.73 per gallon, while for rBST-free milk it is only $0.26 per gallon. It is therefore unclear whether organic products are substitutable for GM(O)-free products. There may be some consumers who would want to purchase GM(O)-free products (e.g. at a small premium), but who are unwilling to pay a higher premium for an organic product which combines other attributes which are not of interest to them. The price premium associated with organic can lead consumers to avoid the organic market despite believing that organic attributes are nonetheless important (Abrams et al., 2010).

It is also unclear whether consumers realise that organic products are also 'GM(O)-free'. One study found that knowledge of organic tends to be limited to the rules governing use of pesticides and antibiotics (Gifford and Bernard, 2008). In another, only about 23.5 per cent and 10.6 per cent of respondents thought that the Austrian Organic and European Organic labels, respectively, guarantee a product is GM(O)-free.

Seventy-eight per cent of Member State respondents (21) to the questionnaire sent out for this study saw no added value to dual labelling, often citing the existing association between the 'organic' label and 'the lowest possible presence' of GMOs as sufficient. Some Member State representatives (Latvia, Romania, Ireland and Denmark) added that consumers are already aware of this association, and that dual labelling would be misleading or unnecessary. Dissenters to this majority view see explicit labelling as beneficial insofar as it is made clear that the GM(O)-free label goes beyond the 0.9 per cent threshold towards a zero-tolerance approach.

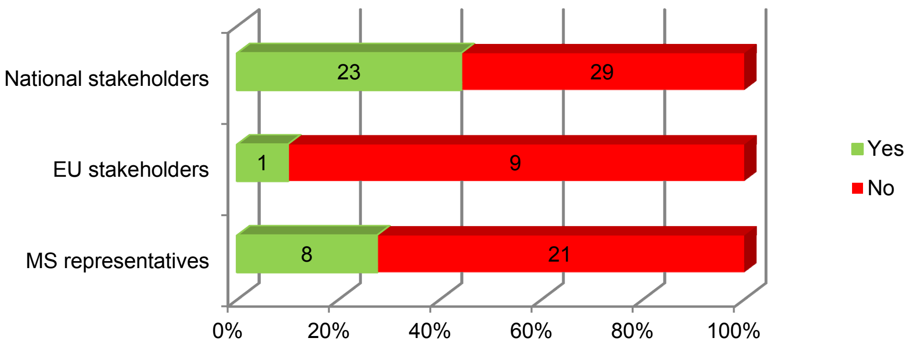
Nine out of ten EU-level stakeholder respondents to this question saw no added value in having explicit 'GM(O)-free' labels alongside organic schemes. All nine justified their response by stating that GM(O)-free requirements are already part of the organic legislation. A majority of MS representatives (21 out of 29, 72 per cent) also believes that there is no added value in having explicit 'GM(O)-free' labelling alongside organic labelling. Stakeholder responses at national level were more mixed, with 23 out of the 52 respondents (44 per cent) believing there is added value for the consumer to be gained from this additional/more explicit information, particularly if this were to mean a shift towards a zero-tolerance approach. Survey results regarding views on dual labelling are presented in Figure 6.9.

[78] DG AGRI (2013) 'Consultation for the review of the European policy on organic agriculture', http://ec.europa.eu/agriculture/consultations/organic/2013_en.htm.

[79] Non-representative sample of 44,190 contributions from across the EU; 56% of the respondents were based in France, followed by 15% in Italy. The distribution by MS is similar to participation in other DG AGRI consultations. Ninety-six per cent of those surveyed identified themselves as responding as a 'citizen of the EU', followed by 2.29% contributing 'on behalf of a company'. Forty-nine per cent of respondents identified as a 'farmer', followed by 10% as a 'consumer', 9% as a 'processor' and 9% as 'other.

Figure 6.9 Organic and GM(O)-free labels

"Do you think there is added value in having explicit "GM(O)-free" labelling alongside organic product belling?"

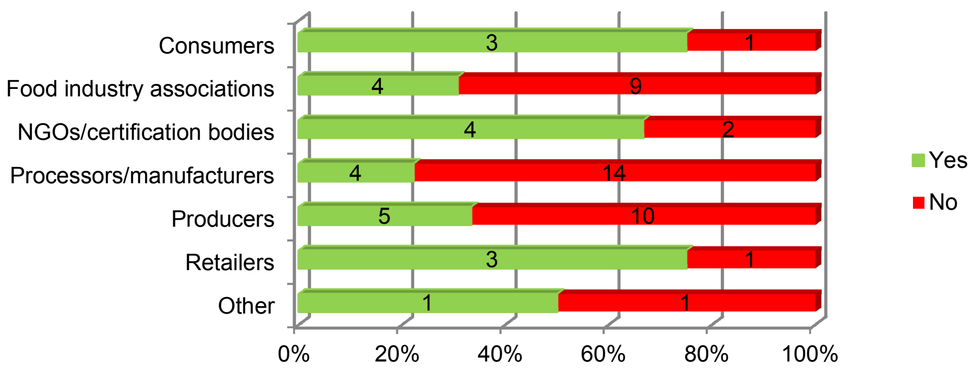


Note: in total there were 52 national stakeholders, 10 EU level stakeholders and 29 MS respondents.

A large majority of processors/manufacturers (14 out of18), a majority of producers (10 out of15) and food industry associations (9 out of 13) did not see added value in a GM(O)-free label, while the majority of consumer associations (3 out of 4) and retailers (3 out of 4) and two thirds of NGOs/certification bodies (4 out of 6) favoured dual labelling. Survey responses are summarised in Figure 6.10.

Figure 6.10 Organic and GM(O)-free labels, views by sector

"Do you think there is added value in having explicit "GM(O)-free" labelling alongside organic product labelling?"



Note: total sectoral respondents were 4 consumers associations, 13 food industry associations, 6 NGOs/certification bodies, 18 processors/manufacturers, 15 producers, 4 retailers and 2 other organisations (one research centre and one municipality).

7 Appraisal of elements to include in a harmonised approach

This chapter provides an appraisal of elements that could be included in a harmonised approach to GM(O)-free labelling in the EU. Each element is considered on its own merits, drawing on available evidence to assess the areas for which the impacts are likely to be most significant and/or where there are uncertain outcomes or conflicting information makes it difficult to determine the most likely direction of change arising from a particular choice. Discussion on each element focuses on consumer responses to particular aspects of an element's specification and economic impacts on operators.

Most of the expected impacts will be similar for each element, but vary by the *approach* chosen (e.g. very strict or very relaxed criteria for each element). The chapter concludes with an assessment of the elements in combination, considering the potential approaches that might be taken and possible combinations of elements.

7.1 Approach to the appraisal of elements and options

The assessment considers potential impacts on consumers, operators and national authorities of elements that may comprise a harmonised approach to GM(O)-free labelling against the interaction with and value-added compared to EU organic rules and according to the following assessment categories:

- Economic impacts,
- Social impacts,
- Trade impacts,
- Consumer impacts, and
- Environmental impacts.

Table 7.1 sets out the impact categories and associated indicators that the study team considered to conduct a preliminary impact assessment of a harmonised approach. The types of data that may be used to support the assessment are provided alongside the impact categories and associated indicators.

The assessment draws on evidence gathered in the first phase of the study, including information provided through stakeholders and Member State representative interviews and survey responses, as well as information obtained through desk research, including academic articles, position papers, stakeholder reports, Eurobarometer surveys, Commission studies, and other information.

Table 7.1 Assessment of a harmonised approach to GM(O)-free labelling

Impact category	Indicators	Data
Economic impacts	Market share, sales volume, product coverage, number of products on the market , price premium, cost and availability of non-GM feed and other non-GM inputs, and ability to reduce or resolve single market problems and create a level playing field for operators	■ quantitative data on existing GM(O)-free market share / coverage where these are available ■ quantitative information on the price premium obtained from GM(O)-free products where available ■ quantitative information on the cost of non-GM feed ■ qualitative information about the availability and issues in procuring non-GM inputs ■ qualitative information on single market issues and level playing field for operators provided by stakeholders and MS representatives
Social impacts	Employment effects	■ indicative information on sector employment based on current market share/product volume

Impact category	Indicators	Data
		in the EU ■ consideration of potential for similar schemes to lead to employment growth (e.g. by looking at results in other schemes such as organic, PDO/PGI, other qualitative labels
Trade impacts	Degree of international trade in 'GM(O)-free' products, and non-GM supply chains originating in third countries	■ qualitative information from operators and others on the degree of international trade or potential trade in 'GM(O)-free' products ■ qualitative information on inputs originating in third countries and any issues with their procurement ■ quantitative information on the volume of non-GM inputs originating in third countries
Consumer impacts	Ability to reduce consumer confusion, not mislead consumers, and meet consumer needs/purchasing power	■ literature on consumer understanding of labels, including 'GM' 'GM-free' and other similar labels ■ stakeholder and MS representative views on consumer demand for and understanding of GM(O)-free labels ■ Willingness to pay/financial capacity to cope with GM(O)-free products costs.
Environmental impacts	Environmental benefits and harms arising from non-GM production vs. GM production, and other environmental effects that may arise from the production processes involved in GM(O)-free schemes	■ scientific studies on environmental benefits and harms arising from non-GM vs. GM production ■ literature review on the environmental effects/potential that may arise from increased use of non-GM production, such as where environmentally friendly practices may be more common but not directly related to the environmental impacts of GM/non-GM production

7.2 Element 1: Labelling rules

There are three possible approaches to the inclusion of labelling rules. Each of these is considered below, including the main issues and expected consumer and economic impacts to be considered in each. Social, environmental and other impacts arising from the different options for each element are summarised alongside the economic and consumer impacts in Table 7.2.

7.2.1 Most restrictive option – prohibitive labelling rules do not allow for any wording or logos that indicate 'GM(O)-free'

Prohibitive labelling rules would ban any wording or logos on products that indicate 'GM(O)-free' status. Only two Member States currently have such rules – Sweden and Belgium. A restrictive approach would remove all GM(O)-free labelled products from the market.

7.2.1.1 Consumer impacts

This approach would reduce or remove consumer confusion / misleading information arising from the current EU situation in Austria, France, Germany, and Italy where GM(O)-free labelled products appear widely (see section 5.1). Consumer demand for GM(O)-free labelled products would go unmet, however, because no such products would appear on the EU market.

7.2.1.2 Economic impacts

The disappearance of GM(O)-free labelled products from the EU market would have negative economic impacts on operators supplying these markets (see section 4.2). Price premia for non-GM feed and other inputs may be reduced or eliminated. Some operators in the middle of the supply chain may, however, find that costs are reduced as they are no longer required to meet additional requirements for non-GM supply chains (see section 4.3).

Nonetheless, operators may still try to meet demand for 'GM(O)-free' products by maintaining non-GM supply chains as currently occurs in the UK for some supermarket 'own label' products (see section 3.5.5). Additionally, unless the legislation was wider in scope, marketing materials could be used to make claims about the 'GM(O)-free' status of the products even where explicit product labels are banned, as currently occurs in Sweden (see section 3.5.5). This would provide an opportunity for such products to remain on the market, although market share would likely be reduced.

7.2.2 Intermediate option – 'facilitative' labelling rules that specify allowed words and/or provide for a common logo

An intermediate option would provide for 'facilitative' labelling that specifies harmonised words and/or provides for a common EU logo for GM(O)-free products.

7.2.2.1 Consumer impacts

A harmonised voluntary labelling approach that introduces a common vocabulary and/or a common logo may help to reduce consumer confusion arising from multiple labels in different EU Member States. Evidence suggests that consumers may be confused by the appearance of a second label in addition to existing positive labels and unlabelled plant-based food products in the EU (see section 6.2.4.2). Additionally, the High Level Forum for a Better Functioning Food Supply Chain recognises the risk that labelling proliferation can confuse consumers (see section 6.2.2.2).

A concern with the introduction of harmonised labelling for GM(O)-free products in the EU is the potential for widespread use of a second label related to the use of GM products. Studies show that consumers value products differently when there are two labels on the market in addition to an unlabelled product. The presence of a GM(O)-free label may decrease consumer trust in products carrying the mandatory GM label and decrease the value of unlabelled products. Consumers are likely to be confused where two labels and an unlabelled category coexist, particularly with regard to the unlabelled category. There is also the potential for GM(O)-free labels to affect consumer attitudes toward GM labelled products as GM(O)-free products are likely to be viewed as superior to GM labelled products, or reinforce and further emphasise the view that GM products carry risks. Nonetheless, a 'second label' already exists in some EU Member States where GM(O)-free labelling is used (e.g. Germany, Austria, France, Italy) and there is no evidence to suggest that this is causing consumer confusion in these countries.

The interaction between organic and GM(O)-free labels is uncertain. The two markets may be able to co-exist, for example, where a less expensive, stand-alone GM(O)-free label enables consumers to select for that attribute in the market. Where such a label may be used alongside organic labels, the requirements of the GM(O)-free label would need to be stricter than the non-GM requirements for organic in order to add value and reduce consumer confusion (see section 6.3.2).

Nonetheless, consumers may find it easier to identify and understand GM(O)-free labels where a single, consistent logo and/or wording is allowed. Lessons may be learnt from the development of an EU harmonised logo for organic products to facilitate consumer identification of these products across Europe.

7.2.2.2 Economic impacts

Harmonised voluntary rules for wording and/or a logo could have positive impacts on EU operators as increased recognisability and potential improvement in consumer trust in the

standards underlying the label (due to the appearance of harmonisation through a common logo/words) expands the market share of such products. Harmonised rules would also enable the smooth operation of the single market, reducing costs on operators where cross-border trade is currently restricted (see section 5.2.2). Most GM(O)-free products are typically produced specifically for a national market, however, so the need for a single logo and wording may be less important.

7.2.3 Least restrictive option – facilitative labelling rules that do not specify allowed words or logo but provide guidelines for MS and operators

This option involves facilitative voluntary labelling rules that would not specify the precise words that may be used or a common logo but would provide guidelines to enable operators to establish their own labelling approaches.

7.2.3.1 Consumer impacts

Most GM(O)-free products are developed for national markets, rather than for sale across different EU Member States. In the large majority of cases, guidelines would be sufficient to help operators develop suitable labels that meet existing EU labelling requirements to avoid misleading consumers. Nonetheless, there is some existing cross-border trade, such as between Austria and Germany and between these countries and France. For these and other similar situations, common rules could help consumers so that multiple labels do not create confusion.

7.2.3.2 Economic impacts

EU guidelines for acceptable wording and/or use of a logo could have positive impacts on EU operators as they could engender greater confidence for operators to develop labelling that conforms to existing EU labelling rules. Such an approach has been taken in Finland (see section 3.1.2.7). Hybrid approaches are also possible: France has set down rules regarding the wording that may be used, but has not specified a logo; Austria provides guidelines on acceptable wording, but operators are free to use their own logo if they choose (see section 3.5.1). Most GM(O)-free products are typically produced specifically for a national market so that EU rules for common wording and/or a logo may be less important. The introduction of GM(O)-free certification in the UK for food products that may carry the German 'Ohne GenTechnik' mark, both for export to Germany and for domestic consumers suggests that the private sector can develop approaches that facilitate the smooth functioning of the single market without government intervention. Guidelines could help bring consistency to private sector approaches such as this one.

Table 7.2 Element 1: Labelling rules

	Most restrictive option	Intermediate option	Least restrictive option
Impacts	**Prohibitive labelling rules do not allow for any wording or logos that indicate 'GM(O)-free'**	**Facilitative voluntary labelling rules specify allowed words and/or provide for a common logo**	**Facilitative voluntary labelling rules through guidelines to assist MS and operators, but does not specify wording, logo, etc.**
Consumer	Reduces or removes consumer confusion / misleading information arising from the current EU situation in AT, FR, DE and IT where GM(O)-free labelled products appear widely. Consumer demand for GM(O)-free labelled products would go unmet because no products would appear on the EU market.	May reduce consumer confusion arising from multiple labels in different EU MS. Evidence also suggests that consumers may be confused by the appearance of a second label in addition to existing positive labels and unlabelled products in the EU.	Guidelines may be sufficient to help operators develop suitable labels that avoid misleading the consumer, but common rules may facilitate the limited cross-border trade.
Economic	Negative economic impacts on operators supplying GM(O)-free markets. Price premia for non-GM feed and other inputs may be reduced or eliminated. Some operators in the middle of the supply chain may find that costs are reduced as they are no longer required to meet additional requirements for non-GM supply chains.	Positive impacts on EU operators through expanded market share of products; enables the smooth operation of the single market.	Potential positive impacts on EU operators as it could create greater confidence for operators to develop labelling that conforms to existing EU labelling rules and thus expand the market share of such products.
Social*	Some job loss across the supply chain may occur where operators can no longer produce such products. Job losses expected to be limited due to the niche representation of the sector. Effects likely to vary considerably by MS, with greatest potential negative impacts in those MS where GM(O)-free labelling activity is currently highest	Increased market share is likely to lead to some job creation for GM(O)-free labelled products. This is particularly likely in countries that do not currently have such products on the market.	Any increased market share is likely to lead to some job creation for GM(O)-free labelled products. This is particularly likely in countries that do not currently have such products on the market.
Other issues[80]	No environmental impacts are anticipated	No environmental impacts are anticipated	No environmental impacts are anticipated

** In all cases, losses in the GM(O)-free sector would be expected to be offset by marginal gains elsewhere in the economy because overall consumption levels are not expected to change.*

[80] GMOs authorised for use on the EU market (whether cultivated in the EU or imported) must pass an environmental risk assessment (ERA) prior to deliberate release. From a regulatory perspective, the production of GM(O)-free labelled products is not linked to any particular environmental benefits or drawbacks in the EU. Therefore, changes to the current situation are unlikely to have impacts in this area.

7.3 Element 2: Product scope

There are two possible approaches to defining the product scope for GM(O)-free labels. Each is considered below, with a discussion of the main issues and expected consumer and economic impacts to be considered in each. Social, environmental and other impacts arising from the different options for each element are summarised alongside the economic and consumer impacts in Table 7.3.

7.3.1 Intermediate option – facilitative rules that specify a limited range of products to be covered (i.e. only animal products)

An intermediate option would provide facilitative rules that allow only animal products to carry a GM(O)-free label, but not all eligible products (including plant-based food products).

7.3.1.1 Consumer impacts

Given the potential problems with two labels (positive and negative) where positive labelling is required (see section 6.2.3.2), and specific consumer interest in obtaining information about animal products produced from animals fed on non-GM feed (see section 6.2.3.3), there may be a case for limited GM(O)-free labelling product scope to focus exclusively on animal products. This would provide consumers with information they wish to receive without the misleading effects of two or more labels that may arise for food products.

EU regulations on positive GM labelling do not require animal products produced from animals fed on GM feed to carry the positive label. Some consumers, however, consider having this information to be an important issue (see section 6.2.3). GM(O)-free labels which highlight this issue may not be redundant in that they service a demand unmet by existing GM labelling policy. In this case, a GM(O)-free label may have added value in the marketplace. For example, studies have found that the existing demand specifically for GM(O)-free animals products (fresh meat, eggs, milk) is stronger than the demand for labelling other products in Germany and France (see section 6.2.3.2).

7.3.1.2 Economic impacts

Limiting the product scope only to animal products would likely have negative impacts on producers of GM(O)-free labelled plant-based food products as they could no longer be sold as ‘GM(O)-free’. However, most GM(O)-free labelled products in the EU are animal products, so the negative impacts will be limited (see section 3.11). Nonetheless, a more expansive scope for GM(O)-free labelling could provide operators with more opportunities to develop their GM(O)-free ‘offer’.

7.3.2 Least restrictive option – facilitative rules that allow any product with an authorised GM equivalent on the EU market to be labelled as ‘GM(O)-free’

The least restrictive option would allow all eligible products to be labelled as GM(O)-free.

7.3.2.1 Consumer impacts

If all products can carry a GM(O)-free label, consumers may be confused by the existence of two labels (a positive and a negative label) and equivalent unlabelled food products (see section 6.2.3.2).

7.3.2.2 Economic impacts

The schemes operating in the EU allow GM(O)-free labels (in principle) on all eligible food and feed products. The least restrictive option is therefore likely to have no significant negative economic impacts for operators in the EU, and may have positive impacts if it enables more operators to label their products as GM(O)-free.

Table 7.3 Element 2: Product scope

	Intermediate option	Least restrictive option
	Facilitative rules that specify a limited range of products to be covered (i.e. only animal products)	**Facilitative rules that allow any product with an authorised GM equivalent on the market to be labelled as 'GM(O)-free'**
Consumer	Would provide consumers with information they wish to have about animal products without the misleading effects of two or more labels arising for food products.	If all products can carry a GM(O)-free label, consumers may be confused by the existence of two labels (a positive and a negative label) and equivalent unlabelled food products.
Economic	Negative impacts on producers of GM(O)-free labelled food products as these labels would need to be removed from the EU market. Most such labelled products in the EU are animal products however, so negative impacts will be limited.	No economic impacts are anticipated
Social*	Some negative impacts on employment may occur as a result of a more limited product scope for GM(O)-free labelled products, but due to the overwhelming proportion of animal products on the EU market carrying this label, the impacts are likely to be low.	Some positive impacts on employment may occur where the GM(O)-free market can expand in the EU
Other issues[81]	No environmental impacts are anticipated	No environmental impacts are anticipated

** In all cases, losses in the GM(O)-free sector would be expected to be offset by marginal gains elsewhere in the economy because overall consumption levels are not expected to change.*

[81] See footnote 81.

7.4 Element 3: Threshold levels for adventitious or technically unavoidable presence

There are three possible approaches to the inclusion of threshold levels for adventitious or technically unavoidable presence in a harmonised approach. Each of these is considered below, including the main issues and expected consumer and economic impacts to be considered in each. Social, environmental and other impacts arising from the different options for each element are summarised alongside the economic and consumer impacts in Table 7.4.

7.4.1 Most restrictive option – <0.1% threshold for GM(O)-free labelling of plant-based food products and animal products

The intermediate option would set the threshold level for adventitious or technically unavoidable GM presence at the detection limit (<0.1%). Requiring that GM(O)-free labelled products must have <0.1% GM content is a demanding condition that is more restrictive than current rules in some Member States under national schemes, but is the same as rules in other MS and for schemes run by most private operators. A <0.1% threshold is easier to meet for plant-based food products than for the feed that is used to generate animal products.

7.4.1.1 Consumer impacts

There are numerous precedents for labels which include an indication of 'free from' or '-free' but incorporate thresholds for food products (see section 6.2.4.2.2). There is evidence that consumers are willing to accept a mismatch between their expectations and underlying standards since they continue to buy such products. There are fewer examples for animal products (see section 6.2.4.2.3). Some studies have also found that consumers understand the practical problems of achieving a 'zero' level of contamination and accept that some GM content may be present so long as the standards are sufficiently strict (see section 6.2.4.2).

Under a restrictive option, those products that currently meet a <0.1% threshold level would remain on the market. These would primarily be food products and animal products produced under private operator GM(O)-free schemes. Many animal products carrying a GM(O)-free label, however, will require a less stringent threshold level of <0.9% for feed (see economic impacts section 7.4.1.2). As a result some consumer demand for GM(O)-free products would continue to be met and some additional products may appear, but some consumer demand would also go unmet as the number of products for which consumers have the greatest demand (i.e. animal products) would likely be reduced.

This option would also set a stricter threshold level than under existing organic rules. In principle, this could mean that a GM(O)-free label creates additional value compared to organic since the requirements for such a label would be stricter than for organic products (see section 6.2.4). A GM(O)-free label alongside an organic label would indicate to consumers that the product met stricter requirements than an organic product that did not carry such a label. Nonetheless, this may also create confusion for consumers as some consumers expect organic products to be 'GM(O)-free' (see section 6.3.2). This may also reduce the value of organic products for consumers who care about the GM(O)-free status of organic.

7.4.1.2 Economic impacts

Under the restrictive option, those products that already meet a <0.1% limit in Germany under the national scheme for food products could continue to be marketed. Those food and feed products that meet the same limit in France under the new legislation could also carry a GM(O)-free label under intermediate EU rules. Similarly, Austrian operators and other EU retailer and private operator schemes in Italy (e.g. COOP Italia and the UNI working group) apply a voluntary <0.1% limit for food products. In the UK, supply chains developed by retailers and manufacturers to produce animal products fed on non-GM feed would be able to carry an explicit label under restrictive EU rules (see section 3.7).

Negative economic impacts will be felt most for producers of animal products that currently meet a <0.9% threshold level for feed, and particularly in Austria, Germany, France and Italy where animal products represent the largest proportion of GM(O)-free labelled products.

A strict threshold level may increase the price premium for non-GM feed and other inputs paid to producers and other suppliers, as these requirements will be more difficult to meet for some inputs (see section 4.3.2). Strict requirements will also likely require more controls, including analytical tests and segregation activities in production and transport, which can increase production costs.

At the same time, stricter rules than those currently applied in some markets may increase pressure on the supply chain for operators in the middle of the chain to bear greater costs of adhering to stricter requirements. Additionally, if the products do not meet the stricter limit, particularly for feed, there will be additional costs to the operator to sell these products on the conventional market and potential losses from not achieving the price premium as GM(O)-free. If the product cannot be sold on the conventional market, it may have to be discarded which could result in significant losses for the operator. Market share may also decrease for some products where the requirements are set higher than the sector can meet (see section 4.3.3).

7.4.2 Intermediate option – threshold level set at <0.1% for plant-based food products and <0.9% for animal products

The intermediate option would set two different threshold levels for adventitious or technically unavoidable GM presence: one for plant-based food products at <0.1% and one for animal products at <0.9%.

7.4.2.1 Consumer impacts

Some GM(O)-free labelling schemes set a different threshold level for plant-based food products than for feed for the production of animal products (see section 3.7). In particular, the threshold level for GM(O)-free labelling on animal products is often set at <0.9% for feed whereas a stricter threshold is set for food at <0.1%.

Unlabelled food products are not 'automatically' GM(O)-free; they can contain GMOs up to the 0.9% threshold so long as this presence is adventitious or technically unavoidable, according to Regulation 1829/2003. In order not to be misleading under EU food labelling law, plant-based food products would likely need to meet a stricter threshold than <0.9% in order to carry a GM(O)-free label (see section 6.2.4), which this option would provide. This situation does not apply to GM(O)-free labelled animal products, which are not required to carry a positive GM label in the EU.

This option would set the same threshold level as existing organic rules for animal products, but a stricter threshold than for food products (see section 6.2.4). In principle, this could mean that a GM(O)-free label does not create 'value-added' compared to organic for animal products since the requirements would be the same, but may do so for plant-based food products (see section 6.3.2). A GM(O)-free label alongside an organic label would highlight this aspect of the standards that the organic product meets for animal products, but would not indicate to consumers that the product met stricter requirements than an organic product that did not carry such a label. Plant-based food products would however indicate that a stricter requirement was being met.

7.4.2.2 Economic impacts

Consultation with stakeholders and EU Member State representatives for this study suggests that operators in countries where no national rules are in place or where rules are currently very restrictive would like the opportunity to provide GM(O)-free labelled products to consumers. A <0.9% threshold level for animal products would allow all such currently labelled GM(O)-free products to continue to be placed on the EU market. A <0.1% threshold level for plant-based food products would allow products that currently meet this requirement to continue to be placed on the EU market as well. Food products that do not meet the <0.1% threshold would need to be reformulated or relabelled.

This option is particularly beneficial for operators producing GM(O)-free animal products, which represent the greatest proportion of GM(O)-free products and many of which currently meet a <0.9% threshold level (but not a stricter one). The proportion of ‘GM(O)-free’ plant-based food products currently on the EU market is much smaller than animal products, and most of these already meet the stricter requirements. This option is therefore likely to have limited negative economic impacts on GM(O)-free operators.

Previous research has found that a higher (less stringent) threshold level for GM(O)-free food reduces the price of GM(O)-free products. Evidence suggests that price premiums will be reduced for producers of some non-GM inputs due to less stringent standards and that the overall value of such labelled products will also decrease because consumers will have less confidence in these products (see section 6.2.4.2).

7.4.3 Least restrictive option – threshold levels are set at the least strict level possible in conformity with EU positive labelling rules

The least restrictive option would set the threshold level for adventitious or technically unavoidable GM presence at <0.9% to conform with existing EU labelling rules for products containing GMOs for food and/or feed.

7.4.3.1 Consumer impacts

Some GM(O)-free labelling schemes set the threshold level for adventitious or technically unavoidable GM presence at <0.9% for food and for feed (see section 3.7). Consumers continue to buy these products even though research suggests that consumers find a less restrictive requirement to be misleading (see section 6.2.4.2). Research also suggests that consumers prefer the requirements to be as strict as possible even though they understand the practical problems of achieving a ‘zero’ level of contamination and accept some GM content.

Moreover, unlabelled food products are not ‘automatically’ GM(O)-free; they can contain GMOs up to the 0.9% threshold so long as this presence is adventitious or technically unavoidable, according to Regulation 1829/2003. In order not to be misleading under EU food labelling law, plant-based food products would likely need to meet a stricter threshold than <0.9% in order to carry a GM(O)-free label (see section 6.2.4). This situation does not apply to GM(O)-free labelled animal products, which are not required to carry a positive GM label in the EU.

The least restrictive option would allow the greatest number of products to appear on the EU market. All products currently carrying the GM(O)-free label in the EU could continue to do so, and more may appear, especially in countries where rules are not currently in place but where operators would like to see enabling legislation to back a ‘GM(O)-free’ claim.

Consumer demand for GM(O)-free products would be met but the value of such products may be diminished for some consumers. Some studies suggest that at least some consumers would not accept high threshold levels, particularly in the EU context where GM production is currently low. Nonetheless, animal products do not carry positive GM labels, and it is this area where consumer demand for GM(O)-free labels is greatest. Moreover, there are studies that suggest that consumers would accept GM(O)-free products which rely on a limit that complies with existing threshold levels (i.e. <0.9%).

This option would set the same threshold level as existing organic rules (see section 6.2.4). In principle, this could mean that a GM(O)-free label does not create ‘value-added’ compared to organic since the requirements would be the same (see section 6.3.2). A GM(O)-free label alongside an organic label would highlight this aspect of the standards that the organic product meets, but would not indicate to consumers that the product met stricter requirements than an organic product that did not carry such a label.

7.4.3.2 Economic impacts

Consultation with stakeholders and EU Member State representatives for this study suggests that operators in countries where no national rules are in place or where rules are currently very restrictive would like the opportunity to provide GM(O)-free labelled products to

consumers. A <0.9% threshold level would allow all currently labelled GM(O)-free products to continue to be placed on the EU market. This is particularly beneficial for operators producing GM(O)-free animal products, which represent the greatest proportion of GM(O)-free products and many of which currently meet a <0.9% threshold level (but not a stricter one).

Previous research has also found that a higher threshold level for GM(O)-free food reduces the price of GM(O)-free products. Evidence suggests that price premiums will be reduced for producers of some non-GM inputs due to less stringent standards and that the overall value of such labelled products will also decrease because consumers will have less confidence in these products (see section 6.2.4.2).

Most GM(O)-free products are already priced the same as their conventional equivalent, so a less restrictive option is likely to reduce pressure on operators in the middle of the supply chain, because a more liberal threshold level compared to some existing schemes will be easier (i.e. less costly) to meet (see section 4.3.1).

Table 7.4 Element 3: Threshold levels for adventitious or technically unavoidable presence

	Most restrictive option	Intermediate option	Least restrictive option
Impacts	**<0.1% (threshold levels set at the strictest limit feasible with existing analytical methods)**	**<0.1% for plant-based food products <0.9% for animal products**	**<0.9% (above this level, GM presence must be labelled)**
Consumer	Aligns most closely with consumer expectations, but would reduce the number of GM(O)-free labelled products appearing on the EU market, especially for animal products (where a 0.9% limit is currently applied).	Aligns most closely with consumer expectations for plant-based food products, but not for animal products. But consumer demand is greatest for GM(O)-free labelled animal products and consumers may thus accept a less stringent feed threshold.	Aligns least closely with consumer expectations but allows the greatest number of products to appear on the EU market with the label, particularly animal products.
Economic	More demanding than some conditions applied by schemes in AT, DE, FR and IT. Would have negative impacts on existing GM(O)-free producers that use a lower threshold level, and disproportionately affect animal products. Many products labelled as GM(O)-free in these markets would need to be reformulated, removed from the market or given an alternative label.	More demanding than some conditions currently applied for plant-based food products, but the same as those applied to most animal products. Negative economic impacts likely to be limited.	The least restrictive option is likely to increase the market share for GM(O)-free products but may reduce the price premium paid to producers for some inputs.
Social*	Job losses likely to disproportionately affect producers of animal products and be concentrated where more GM(O)-free products are produced/sold (AT, DE, FR, IT). Job gains may occur where GM(O)-free products are developed in MS where it is currently not allowed or where operators wish to have EU rules underlying their approach. A small number of jobs may be created due to increased demand for analytic methods to detect GM presence.	Unlikely to create job losses. Some jobs may also be created due to expanded use of the GM(O)-free label in the EU. Impacts are likely to vary across Member States, and may be greatest in countries where operators would like to produce such labelled products but currently do not.	Some jobs may be created due to expanded use of the GM(O)-free label in the EU. Impacts are likely to vary across Member States, and may be greatest in countries where operators would like to produce such labelled products but currently do not.
Other issues[82]	Some trade may be at risk where GM(O)-free inputs are procured from third countries, particularly for soya, but the impacts are likely to be less than under a very restrictive approach. No environmental impacts are anticipated	Trade opportunities may increase for third country suppliers if harmonisation results in expanded use of the GM(O)-free label in the EU. No environmental impacts are anticipated	Trade opportunities may increase for third country suppliers as they are more likely to be able to meet less stringent requirements than those set by some operators and in some MS. No environmental impacts are anticipated

** In all cases, losses in the GM(O)-free sector would be expected to be offset by marginal gains elsewhere in the economy because overall consumption levels are not expected to change.*

[82] See footnote 81.

7.5 Element 4: Input specifications and exemptions

There are three possible approaches to the inclusion of input specifications and exemptions. Each is considered below, including the main issues and consumer and economic impacts to be considered in each. Social, environmental and other impacts arising from the different options for each element are summarised alongside the economic and consumer impacts in Table 7.5.

7.5.1 Most restrictive option – no GM inputs allowed and no exceptions made

A very restrictive approach that does not provide for any exceptions to the use of non-GM inputs is a demanding condition that is more restrictive than current rules in most Member States (see section 6.2.5).

7.5.1.1 Consumer impacts

As in the case of <0.1% threshold levels for adventitious or technically unavoidable GM presence in all labelled products, strict rules that do not provide any exceptions for GM inputs are most likely to meet consumer expectations for GM(O)-free products. Equally, very strict rules would greatly limit the availability of such products on the EU market, as most existing schemes provide exceptions, particularly for the use of veterinary pharmaceuticals where a non-GM alternative is unavailable (see section 3.8). As currently under the legislation in the Netherlands and the guidelines in Finland, very few if any products would appear on the EU market with a GM(O)-free label.

Impacts will be greatest on consumers in Austria, Germany, France and Italy where GM(O)-free labels are most widely used and have been in use for the longest, and where exceptions are the least restrictive (see section 3.8.1). Impacts will also be felt in Slovenia, where GM(O)-free labels have come into recent use.

Organic production does not allow for any exceptions to GM inputs except in the case of veterinary pharmaceuticals where a non-GM alternative is unavailable (see section 6.2.5). Organic rules would also allow an exception for vitamins, enzymes and amino-acids where a non-GM alternative is unavailable, but has so far not granted such an exception. A GM(O)-free labelling scheme that did not allow any exceptions would therefore be stricter than EU organic rules.

7.5.1.2 Economic impacts

A restrictive approach to providing exceptions for the use of non-GM inputs would have negative economic impacts on EU operators because it would reduce the market share of such products to at or near zero in the EU. Most existing GM(O)-free-labelled products in the EU would disappear. This would have the greatest negative economic impact on operators in Austria, Germany and France, where GM(O)-free labelled products have been produced the longest and already represent significant market share to some operators (see section 3.11). Negative impacts will be lowest in those Member States that currently maintain similar standards, such as Finland.

Very restrictive rules may also help relieve pressure on the supply chain to meet GM(O)-free requirements since a restrictive approach would effectively eliminate GM(O)-free labelling, resulting in a return to ‘conventional’ production without the extra (more costly) measures to maintain GM(O)-free standards. Operators may choose to maintain unlabelled, non-GM supply chains, which would offset this effect (see section 3.4)

Consumers may decide to purchase more organic products to meet the demand for ‘GM(O)-free’ products, which could increase the market share for organic in the EU and benefit these operators. Nonetheless, it is unclear that organic products are a substitute for ‘GM(O)-free’ products and organic requirements are much broader than those for GM(O)-free (and therefore more demanding for some production-related aspects, such as the use of pesticides) (see section 6.3.2). Thus the organic market may be unable to compensate for the loss in the GM(O)-free market to EU operators.

7.5.2 Intermediate option – no GM inputs allowed, but some exceptions made

An intermediate option would provide exceptions to the ban on GM inputs in extreme cases, such as where a non-GM veterinary product is unavailable or where exceptions to the use of additives and enzymes would only be granted at EU level on a case-by-case basis as under organic rules.

7.5.2.1 *Consumer impacts*

Existing national GM(O)-free labelling rules and EU organic rules provide for an exception in the case of veterinary pharmaceuticals where a non-GM alternative is unavailable (except for labelling guidelines in Finland) (see sections 3.8 and 6.2.5). In Member States with very restrictive rules, such as the Netherlands, there are virtually no labelled products on the market, despite allowing for the use of GM veterinary pharmaceuticals where a non-GM alternative is unavailable (see section 3.11).

Organic rules also restrict the use of additives and enzymes, and these have so far not been granted any exceptions for their use (see section 6.2.5.1). An intermediate approach would restrict the number of GM(O)-free products available on the EU market. Nonetheless, there is a flourishing market for organic products in the EU which suggests that an intermediate option using a similar approach would still allow many GM(O)-free products to appear on the EU market to meet consumer demand.

7.5.2.2 *Economic impacts*

An intermediate option would effectively harmonise conditions currently applied by schemes in Austria, Germany and France (see section 3.8.1). An intermediate option with strict rules for the use of non-GM inputs may increase the price premium for non-GM feed and other inputs paid to producers and other suppliers, as these requirements will be more difficult to meet for some inputs. Stricter rules than those currently applied in some markets may also increase downward pressure on the supply chain for operators in the middle of the chain to bear greater costs of adhering to stricter requirements.

EU organic rules set similarly strict rules to the intermediate option proposed here, and the organic sector is growing in the EU (see sections 6.2.5 and 4.2.6). Strict rules on the use of non-GM inputs may not have a considerable impact on GM(O)-free products available in the EU and therefore, would not have high negative economic impacts on GM(O)-free operators as would likely be the case under the most restrictive option.

7.5.3 Least restrictive option – GM inputs excluded but no specific mention of exceptions made

The least restrictive option would exclude the use of GM inputs but would not specify any rules regarding exceptions.

7.5.3.1 *Consumer impacts*

Rules regarding input specifications and exceptions vary to some degree across Member States where GM(O)-free rules are in place. In countries that wish to facilitate such labelling, exceptions are made in some cases where a non-GM alternative is un available (Austria, France, Germany) (see section 3.8.1). In countries that wish to restrict such labelling, exceptions are only made for veterinary pharmaceuticals or not at all (Finland, Netherlands, Sweden, Switzerland). Where no specific mention of rules on inputs and exceptions are made, Member States are likely to continue to use their existing rules which will likely lead to an effective '*status quo*' situation. Consumer demand will continue to be met as it currently is under national and private operator schemes. Least restrictive rules are more likely to be seen as misleading by consumers, however.

Organic rules are more restrictive on these issues (see section 6.2.5); least restrictive GM(O)-free labelling rules would therefore be more relaxed than existing organic rules and would be less likely to be considered 'value-added' compared to organic for EU consumers (see section 6.3.2).

7.5.3.2 Economic impacts

Consultation with stakeholders and EU Member State representatives for this study suggests that operators in countries where no national rules are in place or where rules are currently very restrictive would like the opportunity to provide such labelled products to consumers. Flexibility on the rules for exceptions to the use of non-GM inputs will also allow all currently labelled GM(O)-free products to continue to be placed on the EU market.

Evidence suggests that price premiums will be reduced for producers of some non-GM inputs due to less stringent standards that could more easily be met. The overall value of such labelled products will also likely decrease because consumers will have less confidence in these products.

Nonetheless, where no specific mention of rules on inputs and exceptions are made, Member States are likely to continue to use their existing rules which will likely lead to an effective '*status quo*' situation for GM(O)-free labelled products.

Table 7.5 Element 4: Input specifications and exemptions

	Most restrictive option	Intermediate option	Least restrictive option
Impact	**No GM inputs allowed and no exceptions made**	**No GM inputs allowed, but some exceptions made**	**GM inputs excluded but no specific mention of exceptions made**
Consumer	Avoids the potential for confusion. Informed consumers content with existing GM(O)-free systems would be unable to exercise their preferences unless alternative labelling schemes were developed by producers.	Would not align as closely with consumer expectations as very restrictive rules but would allow more products to appear on the market with a GM(O)-free label, which would come closer to meeting consumer demand for such products.	Would align least closely with consumer expectations for GM(O)-free products but allow the greatest number of products to appear on the EU market with a GM(O)-free label.
Economic	Negative impacts on most existing GM(O)-free producers, but may also relieve downward pressure from retailers on some operators. Most products currently on the market would be unable to carry a ‘GM(O)-free’ label.	Negative impacts on existing GM(O)-free producers that apply less restrictive requirements. Many products labelled as GM(O)-free in these markets would need to be reformulated or removed from the market.	Likely to increase market share for GM(O)-free products but reduce price premium paid to producers for some inputs. Operators likely to continue using existing rules, which may result in effective ‘status quo’ situation.
Social*	May result in limited job loss across the supply chain. Effects likely to vary by MS, with greatest potential negative impacts where GM(O)-free labelling schemes have less restrictive rules and high levels of GM(O)-free labelling activity. Jobs may also be at risk in industries that provide certification, inspection and monitoring services due to reduction in labelling activity. Employment losses would be expected for specialist GM(O)-free producers.	Some job losses expected in MS where exceptions are currently less restrictive than the intermediate option would allow. Impacts on jobs are likely to be less severe than under a very strict approach and considering that despite stricter restrictions, the organic market continues to grow in the EU. Employment losses would be expected for specialist GM(O)-free producers. Impacts are likely to be less severe than under a very strict approach.	Some jobs may be created where operators expand their use of the GM(O)-free label. Impacts are likely to vary across MS, and may be greatest in countries where operators would like to produce such labelled products but currently do not.
Other issues[83]	Some trade may be at risk where GM(O)-free inputs are procured from third countries, particularly for soya, but the impacts are likely to be less than under a very restrictive approach. No environmental impacts are anticipated.	Some trade may be at risk where GM(O)-free inputs are procured from third countries, particularly for soya, but the impacts are likely to be less than under a very restrictive approach. No environmental impacts are anticipated.	Trade opportunities may be increased where third country suppliers are more likely to be able to meet less stringent requirements than are currently set by some supply chain operators and in some Member States. No environmental impacts are anticipated.

** In all cases, losses in the GM(O)-free sector would be expected to be offset by marginal gains elsewhere in the economy because overall consumption levels are not expected to change.*

[83] See footnote 81.

7.6 Element 5: Minimum non-GM feeding times for animals

There are three possible approaches to the inclusion of minimum non-GM feeding times for animals. Each is considered below, including the main issues and expected consumer and economic impacts to be considered in each. Social, environmental and other impacts arising from the different options for each element are summarised alongside the economic and consumer impacts in Table 7.6.

7.6.1 Most restrictive option – animals must be fed on non-GM feed from birth

An approach that requires animals to be fed on non-GM feed from birth is a demanding condition that is more restrictive than current rules in most Member States, but is applied by most private operator schemes (see section 3.9).

7.6.1.1 Consumer impacts

Very restrictive rules on minimum non-GM feeding times for animals would align most closely with consumer expectations from a GM(O)-free label. Existing studies suggest that many consumers assume that an animal product labelled GM(O)-free indicates that animals have never been fed on GM-feed (see section 6.2.6).

It is unlikely that consumers would be as willing to accept the need for animals to be fed on GM feed for some period of their lives as compared to threshold levels for adventitious or technically unavoidable GM presence, for which there is precedence for standards to be set at or above the detection limit and where consumers tend to appreciate that absolute purity is either very difficult to ensure or very difficult to prove.

Most private operator-led GM(O)-free schemes and non-GM supply chains currently operating in the EU require animals to be fed on non-GM feed from birth (see section 3.9.2). Products labelled GM(O)-free would therefore continue to appear on the EU market. Existing rules in the Netherlands, Finland and Switzerland also require that animals are fed on non-GM feed from birth. Austria, Germany and France, however, provide for minimum feeding times, which enable more operators to provide GM(O)-free animal products in these countries (see section 3.9.1). Consumer demand for GM(O)-free animal products may not be met under stricter rules in these markets.

Organic rules in the EU allow for minimum non-GM feeding periods (see section 6.2.6). Some GM(O)-free schemes in the EU, such as in Austria, are moving toward non-GM feed requirements from birth (see section 3.9.1). Given that there are a range of schemes that currently provide 'GM(O)-free' products where animals must be fed non-GM feed from birth (e.g. most private operator schemes), it may be that a restrictive rule on this issue will not greatly limit the availability of GM(O)-free products for consumers.

7.6.1.2 Economic impacts

A very restrictive approach would have negative economic impacts for operators in Member States that currently allow for a minimum non-GM feeding time before slaughter for livestock animals. Some UK operators have also stopped maintaining non-GM supply chains for some livestock animals (namely, poultry) because they believe it is becoming too costly to source non-GM feed for these animals (see section 4.3.3). Nonetheless, organic producers and many private operators are able to produce animal products where animals are fed on non-GM feed from birth, suggesting that this requirement may not have as negative an economic impact on operators as, for example, a <0.1% threshold level for adventitious or technically unavoidable GM presence or disallowing the use of veterinary pharmaceuticals where a non-GM alternative is unavailable.

7.6.2 Intermediate option – minimum non-GM feeding times established

An intermediate option would harmonise the minimum non-GM feeding times for animals and maintain a strict standard.

7.6.2.1 Consumer impacts

An intermediate option on minimum non-GM feeding times for animals would align less closely with consumer expectations from a GM(O)-free label and existing studies suggest that consumers are less likely to accept a mismatch between their expectation that animals are fed non-GM feed their whole lives and a standard which is less restrictive than, for example, threshold levels for GM presence (see section 6.2.6).

Most private operator schemes maintain strict rules on minimum non-GM feeding times, suggesting that it is possible to provide animal products where non-GM feed has been used for the entire life of the animal (see section 3.9.2). Some UK retailers no longer provide non-GM animal products in some categories (e.g. poultry), however, where they believe it has become too difficult to maintain non-GM supply chains (see section 4.3.3). An intermediate option that is strict, but provides some allowance for minimum non-GM feeding times (set to account for different feed types and other issues for different livestock animals) and that is harmonised across the EU would provide consistency in the standards underlying the label while allowing more products to appear on the EU market to meet consumer demand.

Organic rules also provide minimum non-GM feeding times (see section 6.2.6). Less restrictive GM(O)-free labelling rules would need to take into consideration existing organic rules and potentially set stricter requirements than for organic in order to be considered ‘value-added’ compared to organic for EU consumers. But GM(O)-free products are also generally less expensive than organic products and consumers may value a ‘GM(O)-free’ label that has standards similar to the organic Regulation.

7.6.2.2 Economic impacts

An intermediate option that harmonises minimum non-GM feeding times could help to provide consistency across EU Member States and therefore reduce any internal trade issues arising from existing variance in EU GM(O)-free labelling schemes (see section 5.2). Negative consumer views of minimum non-GM feeding times may however reduce the value of such labelled products (see section 6.2.6).

Existing minimum non-GM feeding times vary across existing national schemes, while most private operators and organic producers require all animals to be fed non-GM feed from birth (see section 3.9). Stricter rules than those applied to existing schemes will have a negative economic impact on operators that currently meet less strict rules.

7.6.3 Least restrictive option – EU rules do not specify minimum non-GM feeding times – provides flexibility for MS and operators

The least restrictive option would neither exclude nor specify minimum non-GM feeding times, providing flexibility across the EU for the time required for animals to be fed on non-GM feed before production (e.g. of eggs or milk) or slaughter.

7.6.3.1 Consumer impacts

Minimum non-GM feeding time requirements vary across national GM(O)-free schemes (see section 3.9). If EU rules do not specify minimum non-GM feeding times, the result is likely to be very similar to the *status quo* situation. While this may mean that consumer expectations are not met by the specifications, it would allow for Member States to tailor their approaches to the issues arising in each country, where consumption of animal products from different livestock animals varies considerably and where sourcing issues for GM feed also vary.

7.6.3.2 Economic impacts

Under the least restrictive option, Member States may continue to use their existing approaches to non-GM feeding times, which can help operators meet the varying requirements for different types of meat product and thus different types of feed requirement in each country. This would allow the greatest number of products to appear on the EU market. Negative economic impacts on EU operators are likely to be minimised under this approach, both because existing requirements do not change for some, and may become easier to meet for others.

Table 7.6 Element 5: Minimum non-GM feeding times

	Most restrictive option	Intermediate option	Least restrictive option
Impact	**Animals must be fed on non-GM feed from birth**	**Minimum non-GM feeding times established**	**EU rules do not specify minimum non-GM feeding times, providing flexibility**
Consumer	Avoids the potential for confusion. Informed consumers content with existing GM(O)-free systems would find fewer GM(O)-free labelled animal products on the EU market.	Would not align as closely with consumer expectations as very restrictive rules. Would, however, allow more GM(O)-free labelled products to appear on the market, which would help meet consumer demand.	Aligns least closely with consumer expectations for GM(O)-free products but would allow the greatest number of GM(O)-free labelled products to appear on the EU market.
Economic	Negative impacts on existing GM(O)-free producers in AT, DE and FR. Some MS, such as Austria and Slovenia are moving towards non-GM feed from birth. Producers that allow minimum non-GM feeding times would need to change their production systems or withdraw from the market.	Could help to provide consistency across EU MS and therefore reduce internal trade issues arising from existing variance in GM(O)-free labelling schemes. Negative consumer views of minimum non-GM feeding times may reduce the value of such labelled products.	Fewest negative impacts on operators currently labelling their products as GM(O)-free as it would allow for existing rules to be maintained. Other operators may market such products in MS where stricter rules apply. Consumers may place less value on these products with negative effects on market share.
Social*	May result in some job loss across the supply chain but this loss expected to be limited due to niche status of the sector. Effects likely to vary by MS, with greatest negative impacts likely in those MS where GM(O)-free labelling activity is highest (e.g. DE, AT and FR). Job loss concentrated in sectors that produce animal products. Some jobs may also be at risk in industries that provide certification, inspection and monitoring services due to reductions in labelling activity.	Some job losses in MS where minimum non-GM feeding times are less restrictive than the intermediate option would allow. Employment losses will be felt exclusively in sectors that produce animal products, since plant-based food products will be unaffected. Impacts on jobs are likely to be less severe than under a very strict approach.	Impacts are likely to vary across MS and may be greatest in countries where operators would like to produce such labelled products but currently cannot. Some jobs may be created in sectors that produce animal products where minimum rules are set due to expanded use of the GM(O)-free label in the EU.
Other issues[84]	Some trade may be at risk where GM(O)-free inputs are procured from third countries, particularly for soya, if non-GM feed cannot be obtained or is too costly. No environmental impacts are anticipated	Some trade may be at risk where GM(O)-free inputs are procured from third countries, particularly for soya, but the impacts are likely to be less than under a very restrictive approach. No environmental impacts are anticipated	Trade opportunities may increase where third country suppliers are more likely to be able to meet less stringent requirements than currently set by some operators and in some MS. No environmental impacts are anticipated

** In all cases, losses in the GM(O)-free sector would be expected to be offset by marginal gains elsewhere in the economy because overall consumption levels are not expected to change.*

[84] See footnote 81.

7.7 Element 6: Certification, inspection and monitoring

There are three possible approaches to product scope for GM(O)-free labels. Each of these is considered below, including the main issues and expected consumer and economic impacts to be considered in each. Social, environmental and other impacts arising from the different options for each element are summarised alongside the economic and consumer impacts in Table 7.7.

7.7.1 Most restrictive option – GM(O)-free claims must be backed by certification; monitoring and inspection rules provided to ensure that operators do not breach the rules

The most restrictive option would require certification and would specify monitoring and inspection rules to ensure that operators adhere to rules prohibiting GM(O)-free labels.

7.7.1.1 Consumer impacts

Studies have found that the reliability of a GM(O)-free label on food seems to depend mostly on the presence of an external certifying institution. The literature also suggests that monitoring and enforcement procedures are very important for increasing consumer confidence in a product. A framework for compliance is crucial, even for a voluntary labelling scheme to reassure consumers that the information provided on a label is truthful and not misleading. Facilitative GM(O)-free labelling backed by certification, and inspection and monitoring rules is likely to have positive consumer impacts.

7.7.1.2 Economic impacts

Costs may increase for some operators where certification is not currently required or obtained, and where any new monitoring and inspection activities are more demanding than existing requirements. There will be some economic costs for public authorities to ensure oversight of the system. Most GM(O)-free schemes in the EU require some form of certification and are backed by monitoring and inspection activities (see section 3.10). Increased consumer trust in such requirements may increase the market share for these products, with positive effects on operators.

7.7.2 Intermediate option – EU harmonised inspection and monitoring specified, but certification is not required

7.7.2.1 Consumer impacts

If prohibitive legislation is chosen, certification would not need to be specified. Some facilitative schemes also do not require certification, such as in Germany (see section 3.10.1). Monitoring and inspection approaches would be included in EU harmonised rules, however, so that any fraudulent or prohibited labels appearing on the EU market may be removed and consumers can be confident that GM(O)-free production is overseen by national authorities to avoid inaccurate, misleading, or fraudulent information.

7.7.2.2 Economic impacts

An intermediate approach that does not require certification is likely to be less costly for operators. There will be some economic costs for public authorities to ensure oversight of the system.

7.7.3 Least restrictive option – No specific mention of certification, inspection or monitoring requirements

The least restrictive option would make no specific mention of certification requirements, or inspection and monitoring activities. Operators and Member States could continue to apply any existing rules.

7.7.3.1 Consumer impacts

If no specific mention is made of certification requirements or inspection and monitoring procedures, then schemes operating across the EU are likely to continue to use their existing requirements. Studies have found that respondents trust the government to control the certification system more than they trust a brand or a store to ensure that certification is carried out appropriately (see section 6.2.7). Therefore national schemes may be considered more trustworthy than private operator led schemes. Studies have also found, however, that where trust in brands or retailers is already high, accurate supply chain controls to avoid the adventitious presence of GMOs may be more important than certification to increase consumers' loyalty.

Some evidence shows that a lack of such requirements can create weaknesses in the systems. For example, in Sweden, despite restrictions on the use of GM(O)-free labels there are no prescribed sanctions for companies labelling their products as GM(O)-free (see section 3.10.4.1). This may explain why products have been found in Sweden bearing a GM(O)-free label and why some of those products labelled as GM(O)-free were found to contain traces of GMOs.

7.7.3.2 Economic impacts

Where national schemes do not specify any control procedures, costs for producers may increase due to additional steps being undertaken by operators to demonstrate that they are trustworthy. This may also create internal market disruptions. Operator costs may also be reduced, however, because they may not incur costs of certification, inspection or monitoring requirements in some Member States.

Table 7.7 Element 6: Certification, inspection and monitoring

	Most restrictive option	Intermediate option	Least restrictive option
Impacts	**Certification required; inspection and monitoring rules established**	**Inspection and monitoring rules established, but certification is not required**	**Certification, inspection and monitoring rules are not specified**
Consumer	Consumer confidence likely to be greatest for certified GM(O)-free labelled products, with inspection and monitoring rules in place.	Facilitative GM(O)-free labelling backed by inspection and monitoring rules is likely to have positive consumer impacts because such rules are likely to improve consumer trust in such products. Consumers likely to be less confident in labelled products without certification requirements.	Some evidence shows that a lack of such requirements can create weaknesses in the systems; where national or private operator schemes do not require these, consumer mistrust is likely to be higher
Economic	Increased costs for EU operators that do not already have certification, but potential increased sales due to increased consumer confidence in product reliability. Costs will also be incurred by regulators to develop certification, monitoring and inspection approaches and to undertake control activities.	Costs may increase for some operators where monitoring and inspection activities are more demanding than existing requirements. Increased consumer trust from such requirements may also increase the market share for these products, with positive effects on operators. Costs will also be incurred by regulators to develop monitoring and inspection approaches and to undertake control activities.	Where national schemes do not specify any control procedures, control costs for producers may increase due to additional steps being undertaken by operators to demonstrate that they are trustworthy. Operator costs may also be reduced, however, because they may not incur costs of certification, inspection or monitoring requirements in some Member States.
Social*	Some job creation may occur to develop certification bodies and/or procedures and for inspection and monitoring services.	A small number of jobs may also be created as a result of the intermediate approach, particularly where there is increased demand for inspection and monitoring activities.	Some jobs may be created to deliver certification, monitoring and inspection controls where these are required under national rules or where there is increased demand by private operators in the absence of national rules.
Other issues[85]	No environmental impacts are anticipated	No environmental impacts are anticipated	No environmental impacts are anticipated

** In all cases, losses in the GM(O)-free sector would be expected to be offset by marginal gains elsewhere in the economy because overall consumption levels are not expected to change.*

[85] See footnote 81.

7.8 Elements in combination

The appraisal set out in sections 7.2 to 7.7 analysed the core elements that should be considered in a potential harmonised approach to GM(O)-free labelling, assessing their impacts, element-by-element, in isolation and with reference to the baseline situation in the EU where a multitude of GM(O)-free schemes already operate.

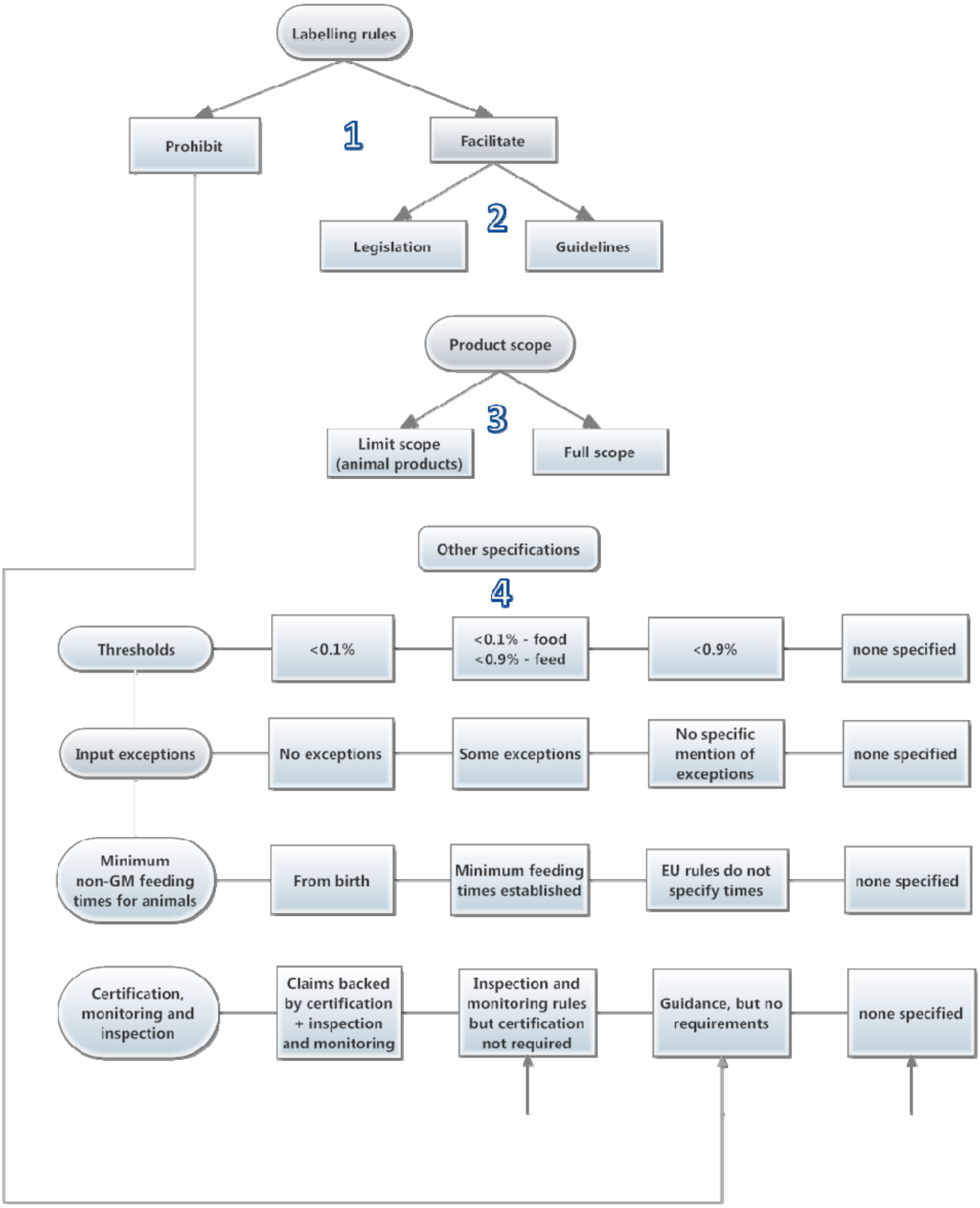
This section sets out possible element combinations, first considering those that are fundamental to a harmonised approach and then those that may or may not be specified. The combinations may also vary by the type of approach taken (very restrictive to least restrictive) depending on the objectives that the approach seeks to meet. Figure 7.1 illustrates the priority for specifying the elements, starting with labelling rules and product scope. A brief summary of the expected impacts arising from these combinations and approaches is also provided.

7.8.1 Labelling rules

Labelling rules are the core element of any harmonised approach to GM(O)-free labelling and will determine whether labelling is allowed or prohibited. If labelling rules are not set, the situation in the EU will remain as it is (the *status quo*), with multiple GM(O)-free labelling schemes developing through national legislation or private operator rules and with continued variance between these across the EU.

Labelling rules are the only element of a harmonised approach that may be set out independently of other elements. The approach taken will affect the specification of any other elements that are included, as discussed below.

Figure 7.1 Labelling rules and product scope are the two elements that require specification for a harmonised approach; other elements may be specified depending on the labelling approach and scope of the scheme



7.8.2 Product scope and strictness of elements specified

A harmonised GM(O)-free approach can also specify the scope of products covered by the scheme and the strictness of the rules applied to the scheme overall and to specific elements, including:

- Threshold levels for adventitious or technically unavoidable GM presence;
- Exceptions for the use of certain GM inputs; and
- Minimum feeding times for animals fed on non-GM feed.

Figure 7.2 illustrates the range of possibilities that may be considered where scope and strictness criteria are applied to the element related to threshold levels for GM presence in a GM(O)-free product.

Figure 7.2 Illustrative example of the scope and strictness considerations that may be applied to threshold levels for GM presence in a GM(O)-free product



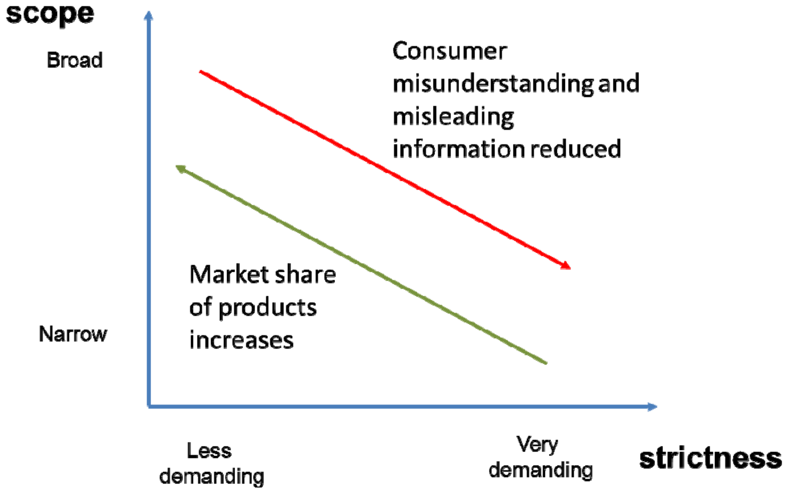
The scope specified may also vary within a harmonised approach to provide different levels of strictness for different elements. For example, different threshold levels for adventitious or technically unavoidable presence may be specified for animal products and food products as they are in many existing GM(O)-free schemes. Different minimum feeding times may be specified for different livestock animals depending on the issues arising with procuring non-GM feed for each.

In general, moving from broad scope and less demanding criteria for the specification of each element to narrower scope and more demanding criteria will have the following inverse effects:

- Consumer understanding and the match between expectations and underlying standards improves, while
- Negative impacts on operators increase and market availability of GM(O)-free products for consumers is reduced.

This is illustrated in Figure 7.3.

Figure 7.3 General impacts arising from scope and strictness specifications in a GM(O)-free labelling scheme



7.8.3 Certification, inspection and monitoring

Requirements for certification of GM(O)-free operators and any inspection and monitoring rules may be specified in a harmonised scheme, but are not essential. Evidence suggests that consumer trust increases where government is involved in setting out specific rules to ensure that all operators have met a common set of requirements and that they are complying with the rules. But existing laws may also be used to monitor and enforce GM(O)-free labelling rules without creating new requirements. The likely impacts arising from inclusion of certification requirements (for a facilitative approach) and inspection and monitoring requirements (for all approaches) are discussed in section 7.7.

ANNEXES

Annex 1 Study terms of reference

Evaluation Framework Contract: Studies, ad hoc Work for IAs, Preparatory Work for Reports, Evaluations, etc.

Date: 18/11/2011

STANDARD FORMAT FOR TERMS OF REFERENCE (TOR)

Full title: State of play in the EU on GM-free food labelling schemes, and assessment of the need for possible harmonisation in this field.

Lead Official/s & Unit: Thomas Brégeon, Unit E1 biotechnology, DG SANCO

DG Co-chef de file: Unit 01 DG SANCO

1. Purpose of the Contract

This contract aims to perform an ad-hoc study on existing GM-free labelling schemes at EU level and to assess the need for harmonisation.

1.1 Context of the study work

The labelling of GMOs is regulated at Union level by Regulation No (EC) 1829/2003 on genetically modified food and feed and Regulation No (EC) 1830/2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed produced from genetically modified organisms. The EU legislation ensures that food products or ingredients which contain, consist of, or are produced from GMOs are labelled. As an exception, labelling is not required for foods with material which contains, consists of or is produced from GMOs in a proportion no higher than 0,9% of the food ingredient considered individually or food consisting of a single ingredient, provided that this presence is adventitious or technically unavoidable (article 12 of Regulation (EC) 1829/2003). This labelling does not apply to meat and food products derived from animals fed with GMOs. This labelling can be defined as "positive labelling", i.e. signalling the presence of GM ingredients. The GMO labelling legislation complements the general provisions on food labelling set by Directive 2000/13/EC on labelling, presentation and advertising of foodstuffs and other labelling schemes (that will be replaced by the recent Regulation on the provision of food information to consumers, which will be published on 22 November 2011[86]).

Regulation (EC) 1829/2003 does not forbid, within the limits of Directive 2000/13/EC, in particular Article 2 thereof, additional labelling practices that would aim to inform consumers that, in addition to what is prescribed by the EU legislation, specific measures have been taken to strictly exclude the presence or the use of GMO in some food or feed products (so-called "Negative labelling").

Two categories of products can be distinguished:

(1) Food/feed categories for which GM products have **not** been authorised in the EU (e.g. GM apple): labelling these foods, or the meat/products derived from animals fed with these feeds as GM-free is suggesting that they possess a special characteristic when in fact all similar food/feed possess the same characteristic, and this is misleading within the meaning of Article 2(1)(a)(iii) of Directive 2000/13/EC.

(2) Food and feed products for which GM products have been authorised in the EU for food/feed use (e.g. maize and derived maize ingredients, soya): such foods can be placed on the market without a GM label provided that they contain GM material in a proportion not higher than 0.9 % (Regulation (EC) No1829/2003, Art 12.2) and that the presence of GM material is unintentional and technically unavoidable. For these foods, a GM-free labelling cannot be excluded a priori. The same, for the meat/products derived from animals fed with these feeds, a GM-free labelling cannot be excluded a priori.

[86] http://register.consilium.europa.eu/pdf/en/11/pe00/pe00043.en11.pdf

Facultative-obligatory "GM-free" labelling schemes have been or are being developed and/or implemented in several Member States, either by public or private operators and organisations[87]. Facultative-obligatory means that operators who choose to use the "GM-free" label are required to adhere to the provisions of these schemes.

In 2008 the Commission launched a comprehensive evaluation of the legislation on GM food and feed, where labelling rules for GM food and feed were addressed in details. The complete evaluation documents were published on 28 October 2011 and are available at: http://ec.europa.eu/food/food/biotechnology/evaluation/index_en.htm

The evaluation specifically addressed the situation of GM-free labelling in the EU, and concluded the following:

- *A majority of Competent Authorities support the use of some form of negative labelling (i.e."GM-free"), although this view is not shared by the majority of stakeholders. Within this there is majority support for voluntary rather than mandatory labelling and for harmonisation at EU level.*
- *Consideration needs to be given to how the concerns of those who wish to see the labelling of livestock products can be addressed and whether this would be proportionate given the potential extent of labelling, complexity and likely economic/administrative burden for the food chain.*
- *It would appear disproportionate and potentially confusing to simultaneously use a positive and negative approach to labelling; consideration should be given as to which approach better protects consumer interests.*
- *There is an expansion of (unharmonised) "GM-free" schemes at national level with different requirements, but relatively consistent labelling which may imply a comparability that does not exist. These may currently compromise the smooth functioning of the single market and consideration should be given to introducing an approach harmonised at EU level if "GM-free" labelling is to be used.*
- *Given the use of threshold levels for adventitious presence of GM material, whether "GM-free" schemes really allow consumers to make an informed choice should be carefully considered.*

In the light of the findings of the evaluation, the Commission announced that it will launch a study to take detailed stock of existing GMO-free labelling systems and to assess the need for harmonisation in this field.

1.2 Objectives and general approach of the study

This study aims to identify and describe food labelling schemes that contain a "GM-free" dimension, which are being applied or developed by public or private entities in the EU. The study also aims to identify and analyse core elements to be considered in the context of an EU harmonised approach of GM-free labelling.

1.3 Use of the contract

SANCO E1 (Biotechnology) is the unit in charge of performing the study.

Associated SANCO Units: 01, E4

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[87] The issue was discussed at the meeting of 22 September 2011 of the Standing Committee on the Food Chain and Animal Health (section GM Food and Feed and Environmental Risk): http://ec.europa.eu/food/committees/regulatory/scfcah/modif_genet/sum_22092011_en.pdf

[88] The Commission will provide the contractor with a list of official contacts in the Member States Competent Authorities after signature of the contract.

[89] http://ec.europa.eu/agriculture/quality/certification/index_en.htm

[90] Nutrition and health claims made on foods, such as "Fat free" or "Sugar free" are harmonised through Regulation (EC) No 1924/2006.

[91] http://ec.europa.eu/enterprise/sectors/food/competitiveness/forum_food/index_en.htm

Associated DGs: SG, AGRI, ENTR, MARKT, TRADE

2. Task(s) to be performed by the contractor

2.1 Scope of the study

(1) Food labelling schemes intended to indicate that the techniques of genetic modification have not been used, and

(2) Food quality production schemes for which GMO labelling is excluded according to the certification criteria.

2.1.1 Temporal scope

The contractor should take as observational period the period 2006-2011, with due attention to labelling schemes developments in the pipeline.

2.1.2. Geographical scope

The contractor should identify the Member States, and/or operators in the Member States, which have developed and/or implemented relevant GM-free labelling schemes. Member States having explicitly excluded the use of GM-free schemes (e.g. the Netherlands) should also be identified. GM-free schemes developed in third countries should also be identified through review of international journals and publications, and analysed if relevant.

2.1.3 Actors

In order to perform the study, the contractor should consult National and EU regulators (in charge of GMOs, food labelling, agriculture, consumer protection and other relevant items[88]), as well as relevant economic operators, in particular with interest in GM-free labelling schemes, involved in the food chain, from the farm to the fork (in particular SMEs, farmers, processors, traders, retailers, consumers), both at national and European levels and in third countries.

Non-Governmental Organisations dealing with environment protection, agricultural practices, consumer protection and rights, etc., should also be consulted.

Research organisations active in agriculture and food chain economics, food labelling, and consumer behaviour analysis should be consulted.

An indicative list of relevant stakeholders to consider is provided in annex I.

2.2 Study tasks

The Commission expects the contractor to perform the following tasks:

1- mapping and analysis of existing GM-free labelling schemes in the food sector

The contractor should identify and analyse comprehensively the features of the existing and developing voluntary GM-free labelling schemes in the EU (and in third countries, if relevant).

The analysis should include at least the following aspects: regulatory status, market shares, type of certification (public or private), possible use of labels, threshold levels in food and feed (0,9%, 0%, etc.), products concerned (e.g. food products of plant origin, food products originating from livestock fed with non GM feed, processed products, processing aids, etc.), methods of certifications and control, impacts on exchanges within the internal market and with third countries, and any other relevant aspects.

The contractor shall analyse the compatibility of the various certification schemes with the Commission Communication — EU best practice guidelines for voluntary certification schemes for agricultural products and foodstuffs (2010/C 341/04) (OJ c341/5 d.d.16-12-2010)

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:341:0005:0011:EN:PDF

The study should also include in its scope more generic food labelling and certification models such as Regulation (EC) No 834/2007 on organic farming, "Organic certification schemes", "Protected Designation of Origin" or "Protected Geographical Indications", when absence of GMO labelling (i.e. at least below the 0,9% labelling threshold level) is part of the certification criteria. In this respect, the contractor should consult the Inventory of certification schemes for agricultural products and foodstuffs

marketed in the EU Member States developed for the Directorate Agriculture and Rural Development of the Commission89. The full version of the final report will be provided at the kick-off meeting.

The contractor should identify and assess other relevant labelling statements for food products (e.g. "additive free", "no artificial colors", "gluten free", "Alcohol free" and others[90]) and raise relevant elements that could help analysing the potential impacts of GM-free schemes in the EU context (examples of relevant aspects: production cost of labelling, impact on consumer behaviour, etc.). In this respect, the contractor should also consider the work done by the High Level Forum for a Better Functioning Food Supply Chain[91], and more particularly the workshop on food labelling organised on 12 July 2011 (Key findings report available in Annex 2).

The contractor should also analyse the reasoning developed by the Member States explicitly prohibiting the development of GM-free labelling schemes on their national territories.

The findings of the mapping should be reported in a format allowing an analytical comparative overview of the respective characteristics of the existing/developing schemes. In particular, the report should address the similarities/differences and possible (in)compatibilities of the existing labelling schemes as well as their respective economic impacts.

2- Analysis of essential elements to consider in the perspective of assessing the need for harmonisation of the criteria for GM-free labelling schemes applied in the Member States

Based on the mapping of the existing/developing GM-free labelling and, irrespective of the levels of comparability/compatibility of existing/developing GM-free labelling schemes identified in task 1, the contractor should identify a selection of core elements that should be considered in the perspective of considering a possible harmonised framework for GM-free labelling schemes.

The impacts of the implementation of these elements should be assessed by the contractor, in isolation (element per element) and in combination also with already existing schemes (i.e. different approaches for GM-free labelling schemes), as compared to the current situation (referred to as status quo). The different approaches should be selected for further analysis together with the Commission.

The selected elements should be assessed along the following criteria:

- Capacity to improve the information of European consumers regarding the characteristics of the food they buy;

- Detailed analysis of the economic impacts incurred by the use of the labels for the regulators, the operators along the food chain (including trade issues), and for end-consumers, at national level and EU level when relevant (including the impact on the functioning of the Internal Market and on imports/exports from or to third countries).

- Analysis of the potential social and environmental benefits and risks incurred by the use of the labels in line with current standards for impact assessment analysis.

- Impact on and interplay with and added-value compared to existing EU and national food certification and labelling schemes, such as organically certified products or "Protected Designation of Origin" or "Protected Geographical Indications" (consider in particular the risk of consumer confusion).

2.3 Methodology

The consultation and the data collection shall be based at minimum on desk research, questionnaire and telephone/face to face interviews. The desk research should be comprehensive and the methods used described in the submission of the offer. The contractor should provide an inventory of binding legislations and guidance on GM-free labels currently in force in all the Member States. The contractors should list and analyse all the publications and studies they have identified addressing the accuracy, feasibility, reliability, efficiency, related costs and perception of these labels, as well as the economic, social and environmental impacts incurred by their implementation on the regulators and on all the relevant actors of the food chain, the consumers and other relevant stakeholders. A survey with competent authorities and stakeholders was carried out in 2009 under the auspices of the evaluation of the GM food/feed legislation. This information should be used as a starting point for the current study.

For the current assignment, in a first step, an interview will be done by phone on the basis of a questionnaire with MS and stakeholder experts (building on the one devised and administered for the

Evaluation). Following the analysis of the questionnaire, a selected number of interviews will be carried out face to face or over the telephone to collect additional information. These interviews should be done on the basis of a representative sample, i.e. have sufficient coverage in terms of countries and actors involved. The sample should be balanced in terms of geographical cover.

This will give the opportunity to collect information from different available sources. The questionnaire will be prepared by the Contractor in consultation with the Commission.

Information should be collated from all Member States via a mix of static (desk research) and participatory tools (phone or face-to-face interviews, e-surveys, consumer polls) while giving sufficient attention to information sources alternative to official data sources. A final workshop with experts, the Commission and possibly with selected stakeholders should be organised by the contractor to sanction the final report. The focus is also on validating the quality of the analysis and of the executive summary. SWOT analyses of the selected approaches in task 2 compared to baseline situation in terms of potential for harmonisation should be performed, and included in the Executive Summary.

Case studies e.g. France, Germany, Austria, Italy (MS where GM-free schemes are in place) and the Netherlands (where GM-free schemes are explicitly prohibited) should be developed by the consultants in order to act as quality control filter for the data provided by MS and to provide in-depth insight of approaches adopted by these Member States of interest. The analysis should attempt to develop a cost-effectiveness exercise (analyse number of satisfied consumers as measured by objective quantitative methods e.g. customer exit polls, telephone surveys or drawing on already available data sets) benchmarked with the present status quo for the different approaches identified within the remits of the defined task 2.

The contractor is to work in close collaboration with project officers at the European Commission in charge of follow-up of the contract. The contractor is expected to develop and implement a methodology that ensures that all the evaluation tasks are sufficiently well covered, including:

1. a detailed work plan covering at least: a project plan, detailed timetable, budget, a list of experts and their CVs to be involved in the contractor's team, indicating the task in the project plan to which they will be committed. [Note: no on the spot visits are foreseen in this study];

2. a description of the complete methodology (building on the proposed guidance in annex II), including consideration given to past surveys to Competent Authorities in the concerned countries, and to other stakeholders; the contractor shall provide a selective overview of answers received.

Proposals for further methodological tools that may contribute to achieving the objectives of the study will be considered positively when evaluating the proposals.

3. Description of Experts skills & profiles

3.1 Experts experience required

The contractor should possess a proven level of knowledge and experience in economics, sociology, agrofood policy analysis and analysis of public policies in Member States with special focus on data collection & analysis and policy development. The contractor should also possess requisite training and experience in evaluation methods.

The contractor should possess high level expertise required for the tasks to be carried out. Therefore he or she should:

- Indicate profile and categories of the experts of the contractor's team
- Designate the expert to be team leader for the whole exercise of evaluation to be carried out

The contractor must meet the following criteria:

i. The contractor's team responsible for implementing all the tasks related to the objectives includes at least one team leader with a relevant post graduate university qualification. The team leader should ensure uninterrupted coordination with the European Commission.

ii. Members of the team are to be assigned according to the necessary knowledge and skills for performing the various tasks and subtasks required.

iii. Excellent English language skills are required, both written and spoken.

iv. Demonstrated capability to access documents and interact with informants in all countries as necessary for the completion of the tasks.

4. Organisation of the work

4.1 Budget allocated

Foreseen maximum amount: EUR 125.000.

4.2 Overall management of the contract

The contractor is requested to produce records/minutes of meetings and to submit them to the Commission for approval the week following the meeting.

4.3 Reporting and deliverables

The present assignment includes the submission of a series of deliverables: reports and presentations. The contractor will deliver the following reports at key stages of the evaluation process: inception report, interim report, draft final report and final report. Each report should be written in English, and critically assessed as it provides the basis for tracking the quality of the work done by the evaluator. These reports will be submitted to the Commission, which may ask for complementary information or propose adjustments in order to redirect the work as necessary. Reports must be approved by the Commission. With work progressing and in the light of new findings, revisions of reports already approved may be necessary.

It is essential that all the reports be clear, concise, unambiguous and comprehensive. They should also be understandable for non-specialists. The presentation of the texts, tables and graphs has to be clear and complete and correspond to commonly recognised standards for studies to be published. A structured and precise elaboration of add-ons based on previous deliverables at every stage of the process is requested (for example, this could be done via colour-coding parts of the report developed at the offer, inception, interim and draft final stage). An indicative size of each report to be provided is (excluding annexes):

- inception report: up to 50 pages
- interim report: up to 100 pages
- final report: up to 150 pages

The reports should be provided to the Commission in both MS-Word and Adobe Acrobat (PDF) format with the charts in Excel. They should be accompanied, where requested, by appropriate annexes and delivered in accordance with the deadlines and requirements set out in the Terms of Reference and agreed with the Commission.

Every two weeks, the contractor should submit a short progress note to the Commission reporting on the state of execution of the tasks. Furthermore, the following reports and presentations shall be delivered:

Kick-off meeting report

After signature of the contract, the contractor will participate in a kick-off meeting with the Commission. The purpose of this meeting is to verify:

- the contractor's understanding of the Terms of Reference
- the proposed general approach to the work (methodology, planning, structure of deliverables etc.)
- the composition and eligibility of the contractor's team.

Inception report – within 1 month after the kick-off meeting

The inception report completes the structuring phase of the study. It aims at describing the organisation of the work, adapting and substantiating the overall approach, the methodology required for each evaluation question and/or specific task requested as well as the work plan outlined in the proposal, including the planned timelines. It should set out in detail how the proposed methodology will be implemented, and in particular lay out clearly in tabular form how the method allows each task to be

answered via establishment of judgement criteria and within these, of evaluation indicators. A further column highlighting choice of relevant evaluation tools should complete the table. The inception report should develop such a chart to a level that allows the Commission to gain a good understanding of the evaluation tools and related methodological steps proposed.

The report may complete and/or suggest additional evaluation questions the contractors consider suitable. As such, this document will provide an opportunity to make a final check on the feasibility of the method proposed and the extent to which it corresponds with the task specifications.

The known sources of information, use of tracers (case studies), contact persons in Member States, as well as the way the contractor will interact with Member States representatives will be fully clarified at this stage.

The inception report is submitted to the Commission. On the basis of discussion, including with the contractor, changes and improvements may be requested. Final version of evaluation tasks/questions suggested by the contractor and evaluation indicators to be used will be validated by the Commission at this stage. The contractor will submit a final version within two weeks.

Interim report – within 6 months of the signature of the contract

This report will provide information on the analysis of data collected. The evaluator should already be in a position to provide: a) aggregated data and overview of the period under evaluation, and b) preliminary findings and conclusions regarding the evaluation tasks/questions.

The report will provide the Commission with an opportunity to check whether the study is on track and whether it has focused on the specified information needs.

The contractor will submit a revised interim report with the necessary updates of the report after check by the Commission.

Draft final report – within 10 months of the signature of the contract

This document will provide the preliminary conclusions of the contractor in respect of the tasks in the task specifications. These will be based on evidence generated through the evaluation. Any judgements provided should be clear and explicit. It will also provide a technical overview of the evaluation process highlighting limitations and possible bias therein.

The draft final report should include an executive summary of not more than 5 pages (synthesis of analyses and conclusions), the main report (structure to be confirmed by the Commission services but planned to reflect the content of the assignment), technical annexes (inter alia the Task Specifications and a compilation of all requested country-based information) and a draft one-page summary of the Key Messages (conclusions in bullet form) of the evaluation. The latter should precede the executive summary.

Final report – to be submitted within 15 days of communication of comments made by the Commission on the draft final report

The final report should have the same structure as the draft final report. It will take account of the results of the comments and discussions with the Commission regarding the draft final report insofar as they do not interfere with the autonomy of the contractor in respect to the conclusions. The executive summary (including the Key Messages section preceding it) should be provided.

The copyright of the reports remains with the Commission.

4.4 Quality Assessment

The Commission will have to agree on a quality assessment of the final report.

For details on minimal requirements regarding quality assessment of the deliverables, please see Annex 3.

In order to ensure the necessary quality for such work requested by the Commission, contractors should be constantly minded that:

- the evaluation shall respond to the information needs, in particular as expressed in the terms

of reference and following discussions with the Commission;

- the methodology and design shall be adequate for proceeding to the evaluation tasks and for obtaining the results needed to answer the evaluation questions;
- collected data must be adequate for their intended use and their reliability must be ascertained;
- data shall be analysed systematically to answer the evaluation questions and to cover all the information needs in a valid manner;
- findings shall follow logically from and be justified by the data/information analysis and by interpretations based on pre-established and rational criteria;
- conclusions for being valid shall be non-biased and fully based on findings.

5. Timetable

5.1 Timetable for the work and deliverables

The contractor is to start the desk-work in January 2011 and the contract should be completed within 11 months from the signature of the contract.

6. List of annexes with specific information

Relevant Community legislation and statistics, databases and other information available at the Commission services

(Detailed information allows better offers and more focused work of the contractor)

ANNEX I

Indicative list of relevant stakeholders

BEUC Bureau européen des unions de consommateurs

CELCAA Comité européen de liaison des commerces agroalimentaires

CIAA Confédération des industries agroalimentaires de l'Union européenne

COCERAL Comité du commerce des céréales, aliments du bétail, oléagineux, huile d'olive, huiles et graisses et agrofournitures de l'Union européenne

COPA-Cogeca Comité des organisations professionnelles agricoles de l'Union européenne – Confédération générale des coopératives agricoles de l'Union européenne

ECCA European Crop Care Association

ECPA European Crop Protection Association

EMRA European Modern Restaurant Association

ESA European Seed Association

EUROCOMMERCE European Representation of Retail, Wholesale and International Trade

EUROCOOP European Community of Consumer Cooperatives

EUROPABIO European Association of Bioindustries

FEFAC Fédération européenne des fabricants d'aliments composés pour animaux

FERCO Fédération européenne de la restauration collective concédée

FRESHFEL European Fresh Produce Association

HOTREC Confédération des associations nationales de l'hôtellerie, de la restauration, des cafés et établissements similaires de l'Union européenne et de l'Espace économique européen

IFOAM EU GROUP International Federation of Organic Agriculture Movements — European Union Regional Group

UECBV Union européenne du commerce du bétail et de la viande

UGAL Union des groupements de détaillants indépendants de l'Europe

ECVC European Coordination via Campesina

FoEE Friends of the Earth Europe

PFP Primary Food Processors

SLOW FOOD Slow Food Associazione Internazionale

ANNEX II

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ANNEX III

Offer

The methodology of this study must be drawn by the tenderers taking into account the objectives and scope described above and existing good practice. The final methodology will be agreed by the Commission and the Contractor during the inception phase.

The tenderers are required to:

- prove understanding of the scope and objectives by drafting an intervention logic,
- prove ability to address the tasks envisaged by breaking them down as in the attached model (model - table n°1),
- clearly detail the different steps of the process specifying required resources (human and financial) and time (model - table n°2),
- present timetable of main milestones of the process

Table n°1

Evaluation task	Judgement criteria	Indicators	Data Sources

Table n°2

Task	Expert (name, category specialisation)	Time required

Tenderers are not expected to restrict themselves to listed minimum requirements. Proposals for additional methodological tools that may contribute to addressing the evaluation questions in a more satisfactory manner will be considered positively when evaluating the proposals.

Inception report

This report will describe in more detail the way the evaluation will be conducted and the methodology. It will provide proposed content of the questionnaires (if any), interview questions (if any), focus group outlines (if any) and the list of organisms to be consulted and also the number of interviewees and their positions and names (if any) (model - table n°3).

This document will provide the Commission with the opportunity to check the feasibility of the method proposed and the extent to which it corresponds with the needs outlined in the terms of reference.

Table n°3

Evaluation task	Judgement criteria	Indicators	Data Sources	**Survey questions, interview questions, focus group outlines**	**List of organisations to be consulted, interviewees, their positions and names**	**Timetable of consultations**

Interim Report

This report shall describe the work completed (most of the fieldwork should be finished):

- list of reviewed documents,
- number of questionnaire and interviews completed,
- summary of preliminary results of the investigation,
- validation of data,
- the way the contractor intends to make the results of interviews comparable,
- (if relevant) list of problems the contractor faced in his work in the framework of the specific contract,
- a process advancement table with critical analysis on the progress of the fieldwork.

Draft Final Report

Evidence from evaluation tools	**Findings:** factual statements derived from the available evidence	**Conclusions:** the evaluators' interpretation of the evidence, applying transparent judgment criteria	**Possible recommendations:** recommended changes or improvements

Annex 2 Questionnaire – stakeholders and MS representatives

A2.1 Member State representative questionnaire

State of play in the EU on GM(O)-free food labelling schemes and assessment of the need for possible harmonisation

MEMBER STATE REPRESENTATIVES CONSULTATION

The purpose and coverage of this survey

GHK Consulting Ltd and a team of experts have been commissioned by the European Commission, Directorate General Health and Consumer Protection (DG SANCO) to conduct a study on existing 'GM(O)-free' labelling schemes in the EU and assess the need for a harmonised approach at EU level. This survey aims to:

- Gather information about the different 'GM(O)-free' food labelling schemes that exist or are being developed in Member States, in order to better understand their design and implementation;
- Understand what elements are important for ensuring a 'GM(O)-free' labelling scheme is successful; and
- Assess the impacts of a possible harmonised approach to 'GM(O)-free' labelling in the EU.

For further information about the study, please visit the project website: www.gm-free.eu

Your responses:

We want to hear the views of Member State representatives on these issues and request your participation in completing this survey to assist us with the study. Nominated authorities in all Member States are being asked to complete and return this survey. A survey is also being sent to industry representatives and other stakeholders to understand their views on these issues. **All responses will be treated as confidential and not attributable to individuals or organisations.**

Deadline for completing the survey:

Please complete and return the survey by **8 June 2012**.

How to submit this form

Please use this interactive Adobe Acrobat document to fill in the survey. You can save a partially completed survey and circulate via email if inputs from more than one person are required. You may fill in as much text as may be required for each descriptive response.

Once you have finished please click the '**Submit**' icon located at the top right of the document to submit your response. Alternatively, please attach a saved copy of the survey to an email and return to Elta Smith, GHK project manager (elta.smith@ghkint.com; +44 (0) 20 7611 1134).

If you have any questions about the study, the survey or about individual questions please contact Elta Smith and you will receive a reply by telephone or email as soon as possible.

The official responsible for this study at DG SANCO is Thomas Brégeon (Thomas.Bregeon@ec.europa.eu; +32 2 295 47 29).

Please provide your contact details by completing the table below. This information will not be passed on to anyone else, and will only be used if we require additional information.

Name:	
Organisation:	
Contact telephone:	
Contact email address:	
Member State:	

We thank you in advance for your time and support.

Introduction to GM(O)-free labelling

The EU regulates products that contain GMOs and requires a label indicating the presence of GMOs where food products contain or consist of GMOs or are produced from or contain ingredients produced from GMOs. A label is not required for food products containing material which contains, consists of or is produced from GMOs in a proportion no higher than 0.9 per cent of the food ingredients considered individually or food consisting of a single ingredient, provided that this presence is adventitious or technically unavoidable.

The regulatory framework does not restrict or prohibit labelling that indicates that specific measures have been taken to strictly exclude the presence or the use of GMOs in some food or feed products (within the limits of Directive 2000/13, and in particular article 2 thereof). Many public and private operators and organisations throughout the EU have therefore developed labelling schemes for these products.

Labelling may be based on product and/or process requirements, and the labels can reflect these differences (e.g. GM-free or GMO-free labels). For the purposes of this survey, the term 'GM(O)-free' captures the multiple possibilities for these types of label.

There are various types of GM(O)-free schemes being used in the EU, including both private and public standards, as well as explicit and implicit standards (i.e. where 'GM(O)-free' criteria is embedded within a wider label). This may include:

- **Type I:** Schemes in which 'GM(O)-free' is the main focus of the label, and where the product label explicitly highlights to the consumer the 'GM(O)-free' attribute of the product.
- **Type II:** Schemes in which 'GM(O)-free' is labelled alongside or in combination with a product label for the consumer which also highlights other product attributes (e.g. regional provenance, organic provenance).
- **Type III:** Schemes in which 'GM(O)-free' is a criterion, but is not supported by a specific product label for the consumer (other communications many be used to highlight the GM(O)-free attributes of the product).

‘GM(O)-free’ labelling in your Member State

The first part of the survey will ask for information about the number and types of ‘GM(O)-free’ schemes in your Member State.

Type I: Schemes with an explicit label identifying the ‘GM(O)-free’ attribute of the product

For this section of the questionnaire, we are only interested in initiatives in which the ‘GM(O)-free’ attribute is explicitly labelled on the product.

1. Is there specific legislation for GM(O)-free labelling in your Member State?

Specific legislation is in place which facilitates/supports GM(O)-free labelling

Please provide the title(s) of the relevant legislation:

Legislation is in place which prohibits GM(O)-free labelling

Please provide the title(s) of the relevant legislation:

No specific legislation which enables or prohibits GM(O)-free labelling

2. Are there any ‘GM(O)-free’ labelling schemes operating in your Member State in which ‘GM(O)-free’ is specifically labelled on the product?

Yes

No

If **yes**, how many Type **I** schemes are operating in your Member State?

If **no**, are there any plans to develop any Type **I** schemes in your Member State in the near future?

Yes *(please provide details below)*

No

If **yes**, for each scheme, please provide any contact details you have for individuals or organisations that we can follow-up with for additional information on the schemes:

Scheme number	Scheme name	Contact name	Organisation	Telephone number/ email address
Scheme 1				
Scheme 2				
Scheme 3				
Scheme 4				
Scheme 5				

Further comment (if any):

Type II: 'GM(O)-free' is included on a product label that highlights other product attributes

In this section, we are interested in food product labelling schemes for which 'GM(O)-free' is one criterion but the label highlights other product attributes (e.g. regional provenance, organic provenance). 'GM(O)-free' may be designated alongside or in combination with this other product label. This includes food labelling and certification models such as organic farming, 'Organic certification schemes', 'Protected Designation of Origin' or 'Protected Geographical Indications'.

3. **Are there any food product labelling schemes operating in your Member State for which 'GM(O)-free' is specifically labelled on the product alongside a label highlighting another product attribute?**

   Yes

   No *(please go to Question 5)*

4. **Please indicate the Type II food product labelling schemes in your MS:**

   Organic provenance

   Protected Designation of Origin

   Protected Geographical Indications

   Other *(please specify)*

   How many Type II schemes are operating in your Member State?

   For each one, please provide any contact details you have for individuals or organisations that we can follow-up with for additional information on the schemes.

Scheme name	Contact name	Organisation	Telephone number/ email address
Organic provenance			
Protected Designation of Origin			
Protected Geographical Indications			
Other *(as described above)*			

Further comment (if any):

Type III: 'GM(O)-free' is a criterion for product procurement by retailers but does not have a specific product label for the consumer

In this section, we are interested in food product labelling schemes for which 'GM(O)-free' is a criterion used in product procurement by the retailer or producer but is not supported by a specific product label for the consumer (other communications many be used to highlight the GM(O)-free attributes of the product).

5. Are there any Type III food product labelling schemes in your MS which incorporate a 'GM(O)-free' element but are not labelled as such?

Yes

No *(please go to Question 6)*

If **yes**, how many Type **III** schemes are operating in your Member State?

For each one, please provide any contact details you have for individuals or organisations that we can follow-up with for additional information on the schemes:

Scheme number	Scheme name	Contact name	Organisation	Telephone number/ email address
Scheme 1				
Scheme 2				
Scheme 3				
Scheme 4				
Scheme 5				

Further comment (if any):

EU level harmonisation of GM(O)-free labelling

This section asks for your views on the current situation whereby there is no 'GM(O)-free' labelling legislation at EU level and on possible EU level harmonisation.

Need for and impacts of a harmonised GM(O)-free label for the EU

6. **Do you think there is added value in having explicit 'GM(O)-free' labelling—that is, labelling that highlights this specific product attribute—alongside other types of qualitative scheme (e.g. 'Protected Designation of Origin' or 'Protected Geographical Indications')?**

   Yes

   No

   Why do you think so?

7. **According to Council Regulation (EC) No 834/2007 on organic production and labelling of organic products, organic products should have the 'lowest possible presence of GMOs', since GMOs and products produced from GMOs are 'incompatible with the concept of organic production and consumers' perception of organic products.' Therefore, the 'existing labelling thresholds represent ceilings which are exclusively linked to the adventitious or technically unavoidable presence of GMOs.'**

   Do you think there is added value in having explicit 'GM(O)-free' labelling alongside organic product labelling?

   Yes

   No

   Why do you think so?

8. **Do you think that the current situation regarding 'GM(O)-free' schemes cause problems for the European single market?**

   Yes

   No *(please go to Question 11)*

9. If you answered '<u>Yes</u>' to Question 8, what problems do you believe arise from the current situation?

Type of problem	**Tick box** *(please indicate all problems you believe arise from the current system)*	**Ranking of answers** *(please rank the problems identified in the order of importance to you)*
Misleading the consumer (i.e. providing false information)		
Consumer confusion over multiple/ different labels		
Standards differ (e.g. acceptance of GM feed)		
Impacts on other labelling schemes (e.g. organic, regional provenance)		
Costs to the supply chain		
Uneven playing field for producers operating under the different labelling schemes		
Monitoring, verification, and certification costs are multiplied for each market		
Other *(please describe)*:		

Further comment (if any):

10. Do you believe action should be taken at European level to harmonise GM(O)-free schemes?

Yes

No

Why do you think so?

11. If a harmonised system were implemented, how do you think this should be done?

Legal basis	**Ranking of answers** *(please rank in the order of importance to you)*
Legal requirements with which all operators who choose to label 'GM(O)-free' must comply	
Voluntary guidelines that operators could choose to implement	
Other *(please explain/ provide an alternative)*	

Further comment (if any):

12. If there was action at European level to harmonise GM(O)-free labelling, what would be the most important elements of such a system?

Elements of a system	**Ranking of answers** *(please rank in the order of importance to you)*
The format of the label	
The wording used (e.g. 'GM(O)-free')	
The scope of the labelling (the products covered)	
The standards for use of GM(O)-free	
Tolerance of adventitious presence of GMOs	
The use of GM medicines and enzymes	
Traceability systems	
Inspection and monitoring	
Other *(please specify)*	

Further comment (if any):

13. Do you believe that only products which contain no GMO, or are not produced with/from GMO, can be labelled as 'GM(O)-free' (i.e. no allowance for the adventitious or accidental presence of GMO)?

Yes

No

Why do you think so?

14. If you answered '<u>No</u>' to Question 13, what do you think should be the tolerance level for adventitious or accidental presence of GMO, below which products could be labelled as 'GM(O)-free'?

<u>Food</u> tolerance level:

<u>Feed</u> tolerance level:

Further comment (if any):

15. What products should be included in a GM(O)-free system?

Product scope	**Tick box** *(please indicate all products that you think should be included in a GM(O)-free system)*
Vegetables	
Processed foods (including oils, fats)	
Meat and meat products	
Dairy products	
Eggs	
Yeast	
Other *(please specify)*	

Further comment (if any):

16. What wording do you think is appropriate for a label indicating that the product is 'GM(O)-free' and for what product(s)?

Wording for the label	*Appropriate*	*Not appropriate*	Products
GM-free			
GMO-free			
Prepared without GM			
Prepared without gene technology			
Does not contain GMOs			
Not genetically modified / engineered			
Fed with GM-free food			
Other *(please describe)*			

Further comment (if any):

17. What other production process-related elements do you think are important to ensure the scheme's success?

Requirement	**Tick box** *(please indicate all elements that you think are important to ensure the scheme's success)*	Comments
Does not allow preparation aided by compounds or processing aids that contain or are derived from GMOs		
Does not allow production (including meat, dairy, eggs, etc.) from animals that have been fed on GM feed		
Does not allow production (including meat, dairy, eggs, etc.) from animals that have been fed on conventional feed that contains GM additives		
Does not allow production (including meat, dairy, eggs, etc.) from animals that have been fed on GM feed that contains GM additives		
Does not allow production (including meat, dairy, eggs, etc.) from animals treated with veterinary products produced with modern biotechnology where non-GM alternatives exist		
Other *(please describe)*:		

Further comment (if any):

18. Should the label allow for any exception(s)?

Exception	Tick box *(please indicate all exceptions that you think the label should allow for)*
No exceptions	
Exception for GM veterinary pharmaceuticals where a non-GM alternative is not available	
Exceptions for certain additives or enzymes where a non-GM alternative is not available	
Exceptions for feed additives where a non-GM alternative is not available	
Exceptions that allow for a minimum time period during which animals are fed 'GM-free' feed before slaughter / production	
Other *(please describe)*	

Further comment (if any):

19. Do you foresee any challenges to implementing a harmonised system?

Yes

No

If **yes**, what are they?

If **yes**, how do you think these challenges could be overcome? If not, why?

20. Please indicate what in your view will be the impact of a harmonised EU-wide 'GM(O)-free' labelling scheme in addressing the following problems:

Problem	Impact *(please indicate on a scale of 'very positive' to 'very negative')*	Explanation
Misleading the consumer (i.e. providing false information)		
Consumer confusion over multiple/ different labels		
Standards differ (e.g. tolerance for GM feed)		
Impacts on other labelling schemes (e.g. organic, regional provenance)		
Costs to the supply chain		
Uneven playing field for producers operating under the different labelling schemes		
Monitoring, verification, and certification costs are multiplied for each market		
Other *(please describe)*:		

Further comment (if any):

21. Please indicate what in your view will be the overall qualitative impact of a harmonised EU-wide 'GM(O)-free' labelling system for the following groups:

Impacted group	Impact *(please indicate on a scale of 'very positive' to 'very negative')*	Explanation
Member State authorities		
Producers		
Importers		
Food manufacturers/processors		
Retailers		
Consumers		
Other *(please describe)*:		

Further comment (if any):

22. Please indicate where in your view the <u>costs</u> will arise from implementing a harmonised EU-wide 'GM(O)-free' labelling system among the following groups*:

Impacted group	Costs *(please indicate on a scale of 'very high' to 'very low')*	Explanation
Member State authorities		
Producers		
Importers		
Food manufacturers/processors		
Retailers		
Consumers		
Other *(please describe)*:		

Further comment (if any):

*If you prefer to send us any data or reports providing quantitative information on GM(O)-free labelling separately, please email these along with your survey to elta.smith@ghkint.com.

23. Do you have any additional comments that you would like us to consider?

A2.2 Stakeholder questionnaire

State of play in the EU on GM(O)-free food labelling schemes and assessment of the need for possible harmonisation

STAKEHOLDER CONSULTATION

The purpose and coverage of this survey

GHK Consulting Ltd and a team of experts have been commissioned by the European Commission, Directorate General Health and Consumer Protection (DG SANCO) to conduct a study on existing 'GM(O)-free' labelling schemes in the EU and assess the need for a harmonised approach at EU level. This survey aims to:

- Gather information about the different 'GM(O)-free' food labelling schemes that exist or are being developed in Member States, in order to better understand their design and implementation;
- Understand what elements are important for ensuring a 'GM(O)-free' labelling scheme is successful; and
- Assess the impacts of a possible harmonised approach to 'GM(O)-free' labelling in the EU.

For further information about the study, please visit the project website: www.gm-free.eu

Your responses:

We want to hear the views of industry representatives, consumers and other stakeholders on these issues and request your participation in completing this survey to assist us with the study. Stakeholders in all Member States are being asked to complete and return this survey. A survey is also being sent to Member State representatives to understand their views on these issues. **All responses will be treated as confidential and not attributable to individuals or organisations.**

Deadline for completing the survey:

Please complete and return the survey by **8 June 2012**.

How to submit this form

Please use this interactive Adobe Acrobat document to fill in the survey. You can save a partially completed survey and circulate via email if inputs from more than one person are required. You may fill in as much text as may be required for each descriptive response.

Once you have finished please click the '**Submit**' icon located at the top right of the document to submit your response. Alternatively, please attach a saved copy of the survey to an email and return to Elta Smith, GHK project manager (elta.smith@ghkint.com; +44 (0) 20 7611 1134).

If you have any questions about the study, the survey or about individual questions please contact Elta Smith and you will receive a reply by telephone or email as soon as possible.

The official responsible for this study at DG SANCO is Thomas Brégeon (Thomas.Bregeon@ec.europa.eu; +32 2 295 47 29).

Please provide your contact details by completing the table below. This information will not be passed on to anyone else, and will only be used if we require additional information.

Name:
Organisation:
Contact telephone:
Contact email address:
Member State:

We thank you in advance for your time and support.

Introduction to GM(O)-free labelling

The EU regulates products that contain GMOs and requires a label indicating the presence of GMOs where food products contain or consist of GMOs or are produced from or contain ingredients produced from GMOs. A label is not required for food products containing material which contains, consists of or is produced from GMOs in a proportion no higher than 0.9 per cent of the food ingredients considered individually or food consisting of a single ingredient, provided that this presence is adventitious or technically unavoidable.

The regulatory framework does not restrict or prohibit labelling that indicates that specific measures have been taken to strictly exclude the presence or the use of GMOs in some food or feed products (within the limits of Directive 2000/13, and in particular article 2 thereof). Many public and private operators and organisations throughout the EU have therefore developed labelling schemes for these products.

Labelling may be based on product and/or process requirements, and the labels can reflect these differences (e.g. GM-free or GMO-free labels). For the purposes of this survey, the term 'GM(O)-free' captures the multiple possibilities for these types of label.

There are various types of GM(O)-free schemes being used in the EU, including both private and public standards, as well as explicit and implicit standards (i.e. where 'GM(O)-free' criteria is embedded within a wider label). This may include:

- **Type I:** Schemes in which 'GM(O)-free' is the main focus of the label, and where the product label explicitly highlights to the consumer the 'GM(O)-free' attribute of the product.
- **Type II:** Schemes in which 'GM(O)-free' is labelled alongside or in combination with a product label for the consumer which also highlights other product attributes (e.g. regional provenance, organic provenance).
- **Type III:** Schemes in which 'GM(O)-free' is a criterion, but is not supported by a specific product label for the consumer (other communications many be used to highlight the GM(O)-free attributes of the product).

'GM(O)-free' labelling in your Member State

The first part of the survey will ask for information about the number and types of 'GM(O)-free' schemes in your Member State.

Type I: Schemes with an explicit label identifying the 'GM(O)-free' attribute of the product

For this section of the questionnaire, we are only interested in initiatives in which the 'GM(O)-free' attribute is explicitly labelled on the product.

1. **Is there specific legislation for GM(O)-free labelling in your Member State?**

Specific legislation is in place which facilitates/supports GM(O)-free labelling

Please provide the title(s) of the relevant legislation:

Legislation is in place which prohibits GM(O)-free labelling

Please provide the title(s) of the relevant legislation:

No specific legislation which enables or prohibits GM(O)-free labelling

2. **Are there any 'GM(O)-free' labelling schemes operating in your Member State in which 'GM(O)-free' is specifically labelled on the product?**

Yes

No

If **yes**, how many Type I schemes are operating in your Member State?

If **no**, are there any plans to develop any Type I schemes in your Member State in the near future?

Yes *(please provide details below)*

No

If **yes**, for each scheme, please provide any contact details you have for individuals or organisations that we can follow-up with for additional information on the schemes:

Scheme number	Scheme name	Contact name	Organisation	Telephone number/ email address
Scheme 1				
Scheme 2				
Scheme 3				
Scheme 4				
Scheme 5				

Further comment (if any):

Please also provide any information you may have on the following:

Extent of Type I labelling schemes	Available figures
The type and number of products to which GMO-free labels are applied in your Member State	
The sales volume of GM-free products being sold in your Member State	
The market share of GM-free products in your Member State	

Further comment (if any):

Type II: 'GM(O)-free' is included on a product label that highlights other product attributes

In this section, we are interested in food product labelling schemes for which 'GM(O)-free' is one criterion but the label highlights other product attributes (e.g. regional provenance, organic provenance). 'GM(O)-free' may be designated alongside or in combination with this other product label. This includes food labelling and certification models such as organic farming, 'Organic certification schemes', 'Protected Designation of Origin' or 'Protected Geographical Indications'.

3. **Are there any food product labelling schemes operating in your Member State for which 'GM(O)-free' is specifically labelled on the product alongside a label highlighting another product attribute?**

   Yes

   No *(please go to Question 5)*

4. **Please indicate the Type II food product labelling schemes in your MS:**

   Organic provenance

   Protected Designation of Origin

   Protected Geographical Indications

   Other *(please specify)*

   How many Type II schemes are operating in your Member State?

   For each one, please provide any contact details you have for individuals or organisations that we can follow-up with for additional information on the schemes:

Scheme name	Contact name	Organisation	Telephone number/ email address
Organic provenance			
Protected Designation of Origin			
Protected Geographical Indications			
Other *(as described above)*			

Further comment (if any):

Please also provide any information you may have on the following:

Extent of Type II labelling schemes	Available figures
The type and number of products to which **organic labels** are applied in your Member State	
The type and number of products to which **Protected Designation of Origin labels** are applied in your Member State	
The type and number of products to which **Protected Geographical Indications labels** are applied in your Member State	
The type and number of products to which **'other' labels** are applied in your Member State (as described above)	
The sales volume of **organic** products being sold in your Member State	
The sales volume of **Protected Designation of Origin** products being sold in your Member State	
The sales volume of **Protected Geographical Indications** products being sold in your Member State	
The sales volume of **'other'** products being sold in your Member State (as described above)	
The market share of **organic** products in your Member State	
The market share of **Protected Designation of Origin** products in your Member State	
The market share of **Protected Geographical Indications** products in your Member State	
The market share of **'other'** products in your Member State (as described above)	

Further comment (if any):

Type III: 'GM(O)-free' is a criterion for product procurement by retailers but does not have a specific product label for the consumer

In this section, we are interested in food product labelling schemes for which 'GM(O)-free' is a criterion used in product procurement by the retailer or producer but is not supported by a specific product label for the consumer (other communications many be used to highlight the GM(O)-free attributes of the product).

5. Are there any Type III food product labelling schemes in your MS which incorporate a 'GM(O)-free' element but are not labelled as such?

Yes

No *(please go to Question 6)*

If **yes**, how many Type III schemes are operating in your Member State?

For each one, please provide any contact details you have for individuals or organisations that we can follow-up with for additional information on the schemes.

Scheme number	Scheme name	Contact name	Organisation	Telephone number/ email address
Scheme 1				
Scheme 2				
Scheme 3				
Scheme 4				
Scheme 5				

Further comment (if any):

Please also provide any information you may have on the following:

Extent of Type III labelling schemes	Available figures
The type and number of products to which GMO-free criteria are applied in your Member State	
The sales volume of GM-free products being sold in your Member State	
The market share of GM-free products in your Member State	

Further comment (if any):

EU level harmonisation of GM(O)-free labelling

This section asks for your views on the current situation whereby there is no 'GM(O)-free' labelling legislation at EU level and on possible EU level harmonisation.

Need for and impacts of a harmonised GM(O)-free label for the EU

6. **Do you think there is added value in having explicit 'GM(O)-free' labelling—that is, labelling that highlights this specific product attribute—alongside other types of qualitative scheme (e.g. 'Protected Designation of Origin' or 'Protected Geographical Indications')?**

   Yes

   No

   Why do you think so?

7. **According to Council Regulation (EC) No 834/2007 on organic production and labelling of organic products, organic products should have the 'lowest possible presence of GMOs', since GMOs and products produced from GMOs are 'incompatible with the concept of organic production and consumers' perception of organic products.' Therefore, the 'existing labelling thresholds represent ceilings which are exclusively linked to the adventitious or technically unavoidable presence of GMOs.'**

   Do you think there is added value in having explicit 'GM(O)-free' labelling alongside organic product labelling?

   Yes

   No

   Why do you think so?

8. **Do you think that the current situation regarding 'GM(O)-free' schemes cause problems for the European single market?**

   Yes

   No *(please go to Question 11)*

9. If you answered '<u>Yes</u>' to Question 8, what problems do you believe arise from the current situation?

Type of problem	**Tick box** *(please indicate all problems you believe arise from the current system)*	**Ranking of answers** *(please rank the problems identified in the order of importance to you)*
Misleading the consumer (i.e. providing false information)		
Consumer confusion over multiple/ different labels		
Standards differ (e.g. acceptance of GM feed)		
Impacts on other labelling schemes (e.g. organic, regional provenance)		
Costs to the supply chain		
Uneven playing field for producers operating under the different labelling schemes		
Monitoring, verification, and certification costs are multiplied for each market		
Other *(please describe)*:		

Further comment (if any):

10. Do you believe action should be taken at European level to harmonise GM(O)-free schemes?

Yes

No

Why do you think so?

11. If a harmonised system were implemented, how do you think this should be done?

Legal basis	**Ranking of answers** *(please rank in the order of importance to you)*
Legal requirements with which all operators who choose to label 'GM(O)-free' must comply	
Voluntary guidelines that operators could choose to implement	
Other *(please explain/ provide an alternative)*	

Further comment (if any):

12. If there was action at European level to harmonise GM(O)-free labelling, what would be the most important elements of such a system?

Elements of a system	**Ranking of answers** *(please rank in the order of importance to you)*
The format of the label	
The wording used (e.g. 'GM(O)-free')	
The scope of the labelling (the products covered)	
The standards for use of GM(O)-free	
Tolerance of adventitious presence of GMOs	
The use of GM medicines and enzymes	
Traceability systems	
Inspection and monitoring	
Other *(please specify)*	

Further comment (if any):

13. Do you believe that only products which contain no GMO, or are not produced with/from GMO, can be labelled as 'GM(O)-free' (i.e. no allowance for the adventitious or accidental presence of GMO)?

Yes

No

Why do you think so?

14. If you answered 'No' to Question 13, what do you think should be the tolerance level for adventitious or accidental presence of GMO, below which products could be labelled as 'GM(O)-free'?

Food tolerance level:

Feed tolerance level:

Further comment (if any):

15. What products should be included in a GM(O)-free system?

Product scope	**Tick box** *(please indicate all products that you think should be included in a GM(O)-free system)*
Vegetables	
Processed foods (including oils, fats)	
Meat and meat products	
Dairy products	
Eggs	
Yeast	
Other *(please specify)*	

Further comment (if any):

16. What wording do you think is appropriate for a label indicating that the product is 'GM(O)-free' and for what product(s)?

Wording for the label	*Appropriate*	*Not appropriate*	Products
GM-free			
GMO-free			
Prepared without GM			
Prepared without gene technology			
Does not contain GMOs			
Not genetically modified / engineered			
Fed with GM-free feed			
Other *(please describe)*			

Further comment (if any):

17. What other production process-related elements do you think are important to ensure the scheme's success?

Requirement	**Tick box** *(please indicate all elements that you think are important to ensure the scheme's success)*	Comments
Does not allow preparation aided by compounds or processing aids that contain or are derived from GMOs		
Does not allow production (including meat, dairy, eggs, etc.) from animals that have been fed on GM feed		
Does not allow production (including meat, dairy, eggs, etc.) from animals that have been fed on conventional feed that contains GM additives		
Does not allow production (including meat, dairy, eggs, etc.) from animals that have been fed on GM feed that contains GM additives		
Does not allow production (including meat, dairy, eggs, etc.) from animals treated with veterinary products produced with modern biotechnology where non-GM alternatives exist		
Other *(please describe)*:		

Further comment (if any):

18. Should the label allow for any exception(s)?

Exception	**Tick box** *(please indicate all exceptions that you think the label should allow for)*
No exceptions	
Exception for GM veterinary pharmaceuticals where a non-GM alternative is not available	
Exceptions for certain additives or enzymes where a non-GM alternative is not available	
Exceptions for feed additives where a non-GM alternative is not available	
Exceptions that allow for a minimum time period during which animals are fed 'GM-free' feed before slaughter / production	
Other *(please describe)*	

Further comment (if any):

19. Do you foresee any challenges to implementing a harmonised system?

Yes

No

If **yes**, what are they?

If **yes**, how do you think these challenges could be overcome? If not, why?

20. Please indicate what in your view will be the impact of a harmonised EU-wide 'GM(O)-free' labelling scheme in addressing the following problems:

Problem	Impact *(please indicate on a scale of 'very positive' to 'very negative')*	Explanation
Misleading the consumer (i.e. providing false information)		
Consumer confusion over multiple/ different labels		
Standards differ (e.g. tolerance for GM feed)		
Impacts on other labelling schemes (e.g. organic, regional provenance)		
Costs to the supply chain		
Uneven playing field for producers operating under the different labelling schemes		
Monitoring, verification, and certification costs are multiplied for each market		
Other *(please describe)*:		

Further comment (if any):

21. Please indicate what in your view will be the overall qualitative impact of a harmonised EU-wide 'GM(O)-free' labelling system for the following groups:

Impacted group	Impact *(please indicate on a scale of 'very positive' to 'very negative')*	Explanation
Member State authorities		
Producers		
Importers		
Food manufacturers/processors		
Retailers		
Consumers		
Other *(please describe)*:		

Further comment (if any):

22. Please indicate where in your view the costs will arise from implementing a harmonised EU-wide 'GM(O)-free' labelling system among the following groups*:

Impacted group	Costs *(please indicate on a scale of 'very high' to 'very low')*	Explanation
Member State authorities		
Producers		
Importers		
Food manufacturers/processors		
Retailers		
Consumers		
Other *(please describe)*:		

Further comment (if any):

*If you prefer to send us any data or reports providing quantitative information on GM(O)-free labelling separately, please email these along with your survey to elta.smith@ghkint.com.

23. The next set of questions asks about the representation by SMEs in your sector/industry.

The EU definition of a small-, medium-sized and micro-enterprise is an enterprise that meets one of the following criteria:

Enterprise category	Headcount	Turnover	Balance sheet total
Medium sized	< 250	≤ € 50 million	≤ € 43 million
Small	< 50	≤ € 10 million	≤ € 10 million
Micro	< 10	≤ € 2 million	≤ € 2 million

Please identify (name) your sector/industry:

Please indicate the approximate number of enterprises operating in your sector:

Enterprise category	Number of each category of enterprises in your sector	Proportion (%) of each category of enterprises in your sector
Medium sized		
Small		
Micro		

Please indicate the estimated number and/or proportion of SMEs and microenterprises operating in your sector that may be affected by any EU level action to harmonise GM(O)-free labelling *(please go to Question 24 if this question is not applicable)*:

Please tick here if your response to this question is the same as your response to the question immediately above:

If your response is different, please fill out the following table:

Enterprise category	Number of each category of enterprises in your sector affected by harmonisation	Proportion (%) of each category of enterprises in your sector affected by harmonisation
Medium sized		
Small		
Micro		

24. Do you have any additional comments that you would like us to consider?

Annex 3 Case study consultees

A1.1 Austria

Table A1.1 Consultation overview - Austria

Organisation	Sector / organisation type
Bundesgremium des Agrarhandels (Austrian Trading Organisation for Food and Agriculture)	Agricultural trade association
Vereinigung Österreichischer Milchverarbeiter (Austrian Association of Dairy Industry)	Dairy association
Fachverband der Nahrungs- und Genussmittelindustrie (VFÖ) (Austrian Board of Food and Luxury Food Industry)	Food processors organisation
Danube Soy	Soy producers association
AMA Agrarmarkt Austria Marketing	Agricultural institution
Global 2000 Heidemarie Porstner	NGO
Greenpeace Austria	NGO
ARGE ohne GenTechnik	Certification organisation
SPAR Österreich	Retailer
Bio Austria	Organic association
Oberndorfer Fleisch GmbH	Slaughtering and cutting
Agricultural chamber Upper Austria	Umbrella organisation representing farmers' interests
Agricultural chamber Austria	Umbrella organisation representing farmers' interests
REWE Austria	Retailer
Bundesministerium für Gesundheit (BMG)	Competent Authority
Umweltbundesamt	Environmental agency

A1.2 Germany

Table A1.2 Consultation overview - Germany

Organisation	Sector / organisation type
Deutscher Bauernverband (German Farmers' Organisation)	Producer / farmer organisation
Raiffeisen Verband (Raiffeisen Organisation)	Producer / farmer organisation
Bund für Lebensmittelrecht und Lebensmittelkunde e.V. (Association of Food Law and Food Science)	Retailer association
Deutscher Verband Tiernahrung e.V (German Feed Association)	Feed association
Bund Ökologische Lebensmittelwirtschaft e.V. (BÖLW)	Food processor association
Milchindustrie-Verband e.V. (German Association of Dairy Industry)	Dairy association
Foodwatch Greenpeace	NGO
Friends of the Earth (BUND)	NGO
Marketinggesellschaft Gutes aus Hessen (Marketing Organisation for food from Hessia)	Marketing association
VLOG Verband Lebensmittel ohne Gentechnik	Certification organisation

Organisation	Sector / organisation type
Tegut	Retailer
REWE	Retailer (one of the biggest retailer groups in Germany)
Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz (Federal Ministry of Food, Agriculture and Consumer Protection)	Competent Authority

A1.3 France

Table A1.3 Consultation overview - France

Organisation	Sector / organisation type
Carrefour	Retailer
Loué	Poultry producer
Auchan	Retailer
Association Nationale des Industries Alimentaires (ANIA)	Food industry association
Consommation, Logement, Cadre de Vie (CCLV)	Consumer association
Union Nationale de L'Apiculture Française (UNAF)	French beekeepers' trade union
Fédération Nationale des Syndicats d'Exploitants Agricoles (FNSEA)	Federation of farmers' trade unions
DGCCRF	Consumers, Competent Authority
Ministère de l'Agriculture	Agriculture, Competent Authority

A1.4 Italy

Table A1.4 Consultation overview - Italy

Organisation	Sector / organisation type
Coldiretti	Producer/ farmer association
COOP Italia	Retailer
CSQA	Independent Certification Body
Progeo Molini	Wheat milling/processing
Fileni	Poultry producer
Slow Food Italy	NGO
Regione Emilia-Romagna	Italian regional government - GMO-free region representative
Ministero della salute	Competent Authority
Neviani mangimi	GMO free certified feed producer
Fontanesi	Large pig farmer selling to a 'no-GMO' supply chain

A1.5 The Netherlands

Table A1.5 Consultation overview – The Netherlands

Organisation	Sector / organisation type
Federation of Dutch Food Industries (FNLI)	Food industry association
Rob Top (individual)	Former civil servant, Ministry of Health, Welfare and Sports, involved in drafting regulation in 1999
Ministry of Health, Welfare and Sports	Competent authority
Bionext	Organic producer
Consumentenbond	NGO
NVWA	Publicly funded nutrition and sustainable food organisation
Barentz Ingredients	Soy producer
ZLTO	Producer / farmer association
Greenpeace Netherlands	NGO
Central Bureau for Food Trade (CBL)	Retailers

A1.6 United Kingdom

Table A1.6 Consultation overview – United Kingdom

Organisation	Sector / organisation type
Marks and Spencer	Retailer
Tesco	Retailer
National Farmers Union (NFU)	Producer/ farmer association
Food and Drink Federation (FDF)	Manufacturer's association
IGD	Charity dedicated to food and grocery industry development and consumer needs
Food Standards Agency (FSA)	Competent Authority

A1.7 Sweden

Table A1.7 Consultation overview - Sweden

Organisation	Sector / organisation type
Livsmedelverket (Swedish Food Agency)	Competent Authority
Federation of Swedish Farmers (LRF)	Producer / farmer association
Konsumentverket (Swedish Consumer Agency)	Competent Authority
Hej då GMO! ('Goodbye GMO!')	NGO

Annex 4 Consultation responses – EU level stakeholders

Table A4.1 EU Consultees

Acronym	Name	Sector	Consultation response
AAF	European Starch Industry		Questionnaire
AETMD	European Association of canned and frozen sweet corn processors		Questionnaire
Amfep	Association of Manufacturers and Formulators of Enzyme Products		Questionnaire
BEUC	Bureau européen des unions de consommateurs		Interview
CELCAA	Comité européen de liaison des commerces agroalimentaires		Referred us to EU members[92]
CIAA	Confédération des industries agroalimentaires de l'Union européenne		No reply
COCERAL + UNISTOCK	Comité du commerce des céréales, aliments du bétail, oléagineux, huile d'olive, huiles et graisses et agrofournitures de l'Union européenne European association of professional portside storekeepers for agribulk commodities		Questionnaire
COPA-Cogeca	Comité des organisations professionnelles agricoles de l'Union européenne – Confédération générale des coopératives agricoles de l'Union européenne		JRC workshop presentation
ECCA	European Crop Care Association		Response indicated that they are not discussing the issue at this time
ECPA	European Crop Protection Association		No reply
EFFCA	European Food and Feed Cultures Association		Questionnaire
EMRA	European Modern Restaurant Association		No reply
ESA	European Seed Association		Interview scheduled but not conducted
EUVEPRO	European Vegetable Protein Federation		Questionnaire
EUROCOMMERCE	European Representation of Retail, Wholesale and International Trade		Interview
EUROCOOP	European Community of Consumer Cooperatives		Interview + questionnaire
EUROPABIO	European Association of Bioindustries		Interview + questionnaire
FEDIOL	European Vegetable Oil and Proteinmeal Industry		Interview + Questionnaire
FEFAC	Fédération européenne des fabricants d'aliments composés pour animaux		Interview
FERCO	Fédération européenne de la restauration collective concédée		Response indicated that they are not discussing the issue at

[92] EU members were contacted; participating members represented elsewhere in this table.

Acronym	Name	Sector	Consultation response
			this time
FoodDrinkEurope	European Food and Drink Industry		Interview + questionnaire
FRESHFEL	European Fresh Produce Association		No reply
FoEE	Friends of the Earth, Europe		Interview
HOTREC	Confédération des associations nationales de l'hôtellerie, de la restauration, des cafés et établissements similaires de l'Union européenne et de l'Espace économique européen		No reply
IFOAM EU GROUP	International Federation of Organic Agriculture Movements — European Union Regional Group		Interview
UECBV	Union européenne du commerce du bétail et de la viande		No reply
UGAL	Union des groupements de détaillants indépendants de l'Europe		No reply
ECVC	European Coordination Via Campesina		No reply
PFP	Primary Food Processors		Response was expected but was not provided
SLOW FOOD	Slow Food Associazione Internazionale		Interview

Annex 5 Data tables for questionnaire responses

Table A5.1 Elements ranked as the most (or second most) important to respondents

	MS Representatives	National Stakeholders	EU Stakeholders
Format of label	-	0 (2)	1 (0)
Wording used	3 (1)	4 (10)	0 (1)
Scope of labelling	5 (5)	7 (6)	0 (1)
Standards of use	11 (7)	21 (5)	1 (0)
Tolerance of adventitious presence	1 (8)	13 (6)	0 (1)
Use of GM medicines and enzymes	0 (1)	0 (1)	-
Traceability systems	3 (1)	1 (11)	-
Inspection and monitoring	0 (4)	1 (7)	-

Table A5.2 Q15: What products should be included in a GM(O)-free system?

	MS Representatives	National Stakeholders	EU Stakeholders
Vegetables	15	29	2
Processed foods	16	32	1
Meat and meat products	15	34	1
Dairy products	15	32	1
Eggs	15	33	1
Yeast	11	28	0
Other	8	16	0
Other (please specify)	Cereals, fruits, feed, all	Cereals, fish, all	n/a

Table A5.3 Q16: What wording do you think is appropriate for a label indicating that the product is 'GM(O)-free' and for what products? [93]

	MS Representatives		National Stakeholders	
	Appropriate	Not appropriate	Appropriate	Not appropriate
GM-free	9	11	14	20
GMO-free	17	7	26	15
Prepared without GMO	6	14	13	19
Prepared without gene technology	5	16	11	23
Does not contain GMOs	11	9	12	24
Not genetically modified/engineered	9	10	8	29
Fed with GM-free food	12	11	24	12

[93] Stakeholders who did not provide any response aren't included in the table.

Table A5.4 Q17: What other production process-related elements do you think are important to ensure the scheme's success?

	MS Representatives	National Stakeholders
No preparation aided by compounds or processing aids containing or derived from GMOs	17	37
No production from animals fed on GM-feed	14	29
No production from animals fed on conventional feed containing GM additives	12	34
No production from animals fed on GM-feed containing GM additives	14	28
No production from animals treated with veterinary products produced with modern biotechnology where non-GM alternatives exist	8	23

Table A5.5 Q18: Should the label allow for any exceptions?

	MS Representatives	National breakdown
No exceptions	8	22
For GM veterinary pharmaceuticals where a non-GM alternative is not available	12	22
For certain additives or enzymes where a non-GM alternative is not available	8	15
For feed additives where a non-GM alternative is not available	7	11
For a minimum time period during which animals are fed 'GM-free' feed before slaughter / production	6	8

Table A5.6 Q20: MS Representative views on the impact of a harmonised EU-wide labelling scheme

	Very positive	Positive	No impact (unknown)	Negative	Very Negative	Total responses
Mislead consumer	7	11	0 (2)	2	4	26
Consumer confusion over multiple labels	4	13	2 (1)	6	0	26
Standards differ	9	9	2 (1)	4	1	26
Other labelling scheme impacts	1	6	13 (3)	2	0	25
Costs to supply chain	0	5	2 (5)	12	2	26
Distort competition ('uneven playing field')	3	14	4 (2)	3	0	26
Monitoring and verification costs	1	7	1 (4)	9	4	26

Table A5.7 Q20: National stakeholder views on the impact of a harmonised EU-wide labelling scheme

	Very positive	Positive	No impact (unknown)	Negative	Very Negative	Total responses
Mislead consumer	17	14	2 (2)	3	3	41
Consumer confusion over multiple labels	11	14	3 (5)	4	2	40
Standards differ	13	17	4 (2)	2	2	40
Other labelling scheme impacts	5	12	11 (6)	6	0	40
Costs to supply chain	4	14	4 (5)	7	6	40
Distort competition ('uneven playing field')	14	18	3 (3)	4	0	42
Monitoring and verification costs	7	14	4 (7)	6	1	42

Table A5.8 Q20: EU stakeholder views on the impact of a harmonised EU-wide labelling scheme

	Very positive	Positive	No impact (unknown)	Negative	Very Negative	Total responses
Mislead consumer	1	1	(3)	1	3	9
Consumer confusion over multiple labels	2		(3)	1	3	9
Standards differ	2		(3)	1	3	9
Other labelling scheme impacts			1 (4)	2	1	8
Costs to supply chain		1	1 (3)	2	2	9
Distort competition ('uneven playing field')	1	1	1 (3)	2	1	9
Monitoring and verification costs		2	1 (3)	2	1	

Table A5.9 Q21: MS Representative views on the qualitative impacts of a harmonised EU-wide labelling scheme on different groups

	Very positive	Positive	No impact (unknown)	Negative	Very Negative	Total responses
MS Authorities	5	8	5 (1)	5	1	25
Producers	2	12	2 (0)	6	2	24
Importers	1	9	4 (2)	8	1	26
Food manufacturers/processors	0	12	2 (3)	7	1	25
Retailers	1	12	5 (3)	4	0	25
Consumers	8	11	1 (1)	4	0	25

Table A5.10 Q21: National stakeholder views on the qualitative impacts of a harmonised EU-wide labelling scheme on different groups

	Very positive	Positive	No impact (unknown)	Negative	Very Negative	Total responses
MS Authorities	7	19	2 (4)	4	2	38
Producers	13	18	1 (2)	3	2	39
Importers	8	15	2 (4)	7	2	38
Food manufacturers/processors	10	18	1 (3)	5	2	39
Retailers	10	17	4 (5)	2	0	38
Consumers	18	13	2 (3)	3	1	40

Table A5.11 Q22: MS Representative views on where the costs will arise of a harmonised EU-wide labelling scheme among different groups

	Very high	High	Medium (unknown)	Low	Very low	Total responses
MS Authorities	4	4	8 (3)	4	1	24
Producers	3	10	8 (1)	1	1	24
Importers	2	4	10 (3)	4	1	24
Food manufacturers/processors	4	11	9	0	1	25
Retailers	1	5	4 (4)	5	5	24
Consumers	1	8	10 (2)	2	1	24

Table A5.12 Q22: National stakeholder views on where the costs will arise of a harmonised EU-wide labelling scheme among different groups

	Very high	High	Medium (unknown)	Low	Very low	Total responses
MS Authorities	2	6	12 (4)	7	3	34
Producers	9	3	11 (5)	5	0	32
Importers	4	7	9 (4)	6	2	32
Food manufacturers/processors	7	3	16 (5)	3	0	34
Retailers	0	0	10 (4)	12	7	33
Consumers	7	2	7 (4)	11	6	37

Annex 6 Non-food/non-feed products

Non-food/feed products may be another market for GM free products. Experience in the organic sector is an important precedent in this respect. Private certification schemes exist in the EU for organic textiles and cosmetics, but the two product categories are not included in the EU organic legal framework, which is limited to agricultural products for food and feed for animals intended for food.[94]

- **Textiles**: The EU Ecolabel Scheme provides for voluntary labelling of organic cotton if the product is at least 95% organic cotton.[95] Cotton and wool are also included in the scope of the UK Soil Association organic certification (Soil Association, n.d.). The Global Organic Textile Standard (GOTS) is the world's leading processing standard for organic textiles and has been developed by international associations of textile producers and certification agencies (GOTS, n.d.).
- **Beauty products**: EU legislation[96] regulates the use of claims on cosmetic products. Common criteria related to labelling cosmetic products as 'natural' and 'organic' are under development (ISO, forthcoming). Cosmetics, skin care products, hair products and soaps are currently certified as organic by the UK Soil Association (Soil Association, n.d.). The Slovenian Institute of Inspection and Certification has recently introduced standards for organic and natural cosmetics, including GM(O)-free requirements (IKC, 2012). Ecocert was the first certification body that developed standards for natural and organic cosmetics; guidelines were introduced in 2003 (Ecocert, 2012). The COSMOS scheme is an international standard for organic cosmetics developed by European standards associations. This standard forbids the use of GMOs (COSMOS, 2011). In 2007, the European Organic Food Federation introduced specific standards for non-food products including the following categories: hair and body care preparations, toiletries (soaps and dental care products), cosmetics and fragrances, aromatherapy products (Organic Food Federation, 2007).
- **Medicinal and aromatic plants**: several producers of medicinal herbs and essence in the EU are certified as organic by Demeter, an international certification organisation (Demeter, 2012). Different companies producing certified organic medical and aromatic plants are present, for example, in France, Germany and Italy (Iporex, 2012).

Organic certification of the listed products include 'GM(O)-free' requirements: Demeter, for examples, requires a GM(O)-free certification for all inputs at risk from genetic modification (Demeter, n.d.).

Organic certification and labelling of textiles and cosmetics is also allowed in third countries. The US Department of Agriculture, for example, provides for organic certification of textiles, cosmetics and personal care products and has developed specific guidelines for labelling these products (USDA, 2012). Other categories of non-food products certified as organic or GM(O)-free are found to be present in third countries, including:

- **Cleaning products**: examples of products with certified organic ingredients can be found in New Zealand (BioGro, 2012). 'Non-GMO Project' verified cleaning products have been developed in the US (cleanVia, 2012);
- **Non-GMO disposable dinnerware** has been developed by a US company in cooperation with the 'Non-GMO Project' (VerTerra, 2010).

There might be scope for certification for other products derived from agriculture, including paper and wood products. The absence of GM wood, for example, is one of the conditions required by the EU Ecolabel for Wooden Furniture (European Commission, n.d.) and for Wooden Floor Coverings (European Commission, n.d.). Certification of paper products with this EU scheme, on the other hand, does not currently include GMO-free requirements. Examples of European companies specialised in

[94] See Article 1(2) of Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products.

[95] Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel.

[96] Article 20 of Council Regulation (EC) No 1223/2009.

the production of furniture from organic materials can be found (Harlands, n.d.). There is no specific standard or certification scheme for wooden furniture comparable to those for textiles.

Annex 7 GM(O)-free labelling 'landscape' in third countries

In the US, Canada, Australia and Japan, negative 'GM(O)-free' labelling is voluntary. Manufacturers are required to take measures to substantiate the claim by testing the presence of novel protein and novel DNA, and document handling practices and procedures (Wong, 2003).

A7.1 Japan

Japan currently allows negative labelling to be conducted on a voluntary basis. Labelling requirements are set out in the 'Labelling Standard for Genetically Modified Foods' (Notification No 517 of the Ministry of Agriculture, Forestry and Fisheries (MAFF) of March 31, 2000). There are three categories of products that may be labelled as GM(O)-free as outlined in Table A7.1.

Table A7.1 Product categories for which a GM(O)-free label may be used

Category	Label designation
Products for which GM can be detected after processing and where non-GM production and distribution is managed and documented through an IP system	The product ingredient label may include 'non GM' or 'non GM is sorted' after the particular relevant ingredient (e.g. soybean)
Products for which GM cannot be detected after processing (e.g. oils, liquid sugar)	The product ingredient label may include 'GM [ingredient] is separated' (e.g. 'GM soybean is separated'), or 'non GM' after the particular relevant ingredient (e.g. soybean)
Animal products (meat, milk, etc.)	The label may indicate that the product was produced from animals fed on non-GM feed (e.g. 'this milk is made from animals fed on non-GM feed')

Sources: ICF GHK and CAA personal communication, 26/10/2012 and CAA Food Labelling System Overview (no date)

There are no provisions for a common mark or logo for non-GM products. Wording that indicates the non-GM status of the product must be indicated in the ingredient list after the name of the ingredient in accordance with the situations set out above.

The threshold level allowed for labelling 'non GM' products is set at 5% (above which products must be positively labelled as containing GM ingredients). For products to be labelled 'non-GM,' ingredients must also be identity-preserved at each step of the production and distribution process in accordance with the 'Labeling Standard for Genetically Modified Foods'.[97] In the event such documentation cannot be provided, products are only allowed to be labelled as 'not segregated from GM products' (Wong, 2003). Identity-preservation is the responsibility of the individual operator; there is no certification authority or third party for certifying non-GM products. The Consumer Affairs Agency (CAA) has published Distribution Manuals for soybeans, corn, potato and papaya to assist operators in IP handling for non-GM foods (CAA 2011, 2002, 2001, 2000). The competent authority (MAFF) and prefectural governments carry out post-marketing food surveillance.

There is no information on the product scope or market share for products carrying the non-GM label (ICF GHK and CAA personal communication, 27 October 2012).

A7.2 New Zealand

The Royal Commission on Genetic Modification was set up in May 2000 to investigate and report on the issues and options surrounding genetic modification for New Zealand. The institution currently supports the New Zealand Joint Food Code as well as the Code's mandatory labelling requirements for GM-derived produce. The Commission considers that a standard GM(O)-free label should be used

[97] Notification No 517 of the Ministry of Agriculture, Forestry and Fisheries of March 31, 2000; latest revision Notification No 9 of the Consumer Affairs Agency of August 31, 2011.

on a voluntary basis to indicate that a food contains no genetically modified material and has not been manufactured in a genetically modified production process.

Under the *Fair Trading Act 1986*, New Zealand's *Commerce Commission* interprets 'GM(O)-free' as the absence of any GM ingredient in a food or genetic modification in the production process of a food product. As such, no 'GM(O)-free' labelling scheme exists in New Zealand. Alternative terminologies to 'GM(O)-free' may be used, however. These include:

- 'Not sourced from GM ingredients' (which does not provide the assurance that the food is free from accidental GM contamination during storage, handling, processing or manufacturing stages);
- 'Best endeavour to be GM-free' (where the intention of the label is to convey that all efforts have been made to be 'GM(O)-free' but there may be an associated risk of adventitious contamination).

A7.3 United States

GM(O)-free labelling is voluntary in the US. According to the US Food and Drug Administration (FDA), the use of negative labelling may suggest to consumers that GM(O)-free foods or ingredients are superior compared to their GM counterparts, but the FDA does not recognise any such material difference. Negative labelling may also be misleading if it suggests that a food or ingredient is not genetically modified when there is no authorised GM equivalent on the market.

In 1999, the United States Department of Agriculture (USDA) and the US Food and Drug Administration (FDA) released the ' Guidance for Industry: Voluntary Labelling Indicating Whether Foods have or have not been Developed using Bioengineering' to provide assistance to manufacturers. Some examples of voluntary labelling possibilities under the FDA guidelines are detailed below.

Table A7.2 Voluntary labelling guidelines in the United States

Wording on label	FDA comment
GMO-free/GM-free (does not contain genetically modified organisms), **OR** Not genetically modified **OR** Biotech-free	Not recommended. 'Free' implies zero content, which is nearly impossible to verify.
We do not use ingredients produced using biotechnology	OK
This oil is made from soybeans that were not genetically engineered	OK
This cantaloupe was not genetically engineered	May be misleading because it implies that other cantaloupes may be genetically engineered. However, currently, there are no such varieties on the market
Genetically engineered	OK
This product contains cornmeal that was produced using biotechnology	OK
This product contains <u>high oleic acid soybean</u> oil from soybeans developed using biotechnology to decrease the amount of saturated fat guidelines	OK. The underlined part is mandatory because it indicates a nutritional change. The rest is voluntary under the proposed guidelines

Source: US FDA (1999)

The most popular 'GM(O)-free' labelling scheme is the 'Non-GMO Project Verified' scheme, initiated in 2005. The Non-GMO Project developed out of two initiatives led by natural food retailers: the 'Big Carrot Natural Food Market' in Toronto, Canada and 'People Want to Know Campaign' in the US. The efficiency of the Canadian initiative was impeded by the absence of an authoritative standard for non-GM production and the US initiative lacked an industry-wide non-GM standard. The two campaigns agreed to form the Non-GMO Project with the aim of creating a standardised meaning of 'non-GM' for the North American food industry. By the spring of 2007, the Non-GMO Project included representatives from all stakeholder groups in the natural products industry, such as consumers,

retailers, farmers and manufacturers. The scheme began to enrol 'Non-GMO Project Verified' products in 2008.[98]

According to SPINS (a market research firm), sales of 'Non-GMO Project' certified products reached US$1 billion in 2011. A 2012 SPINS report claims that 'Non-GMO Project Verified' is the fastest growing eco-label in North America. The scheme ensures that products bearing the seal have gone through a verification process (known as the Product Verification Program (PVP)) which is aimed to assess compliance with the Non-GMO Project Standard.

Figure A7.1 Non-GMO Project label



The 'Non-GMO Project Verified' scheme provides an assurance that a product has been produced according to consensus-based best practices for GMO avoidance which include the following 'action thresholds' for adventitious GM material: 0.1% for seed, 0.5% for food, and 0.9% for feed. The scheme is currently open to food manufacturers, processors, retailers, seed companies and organic certifiers.

Non-GMO inspection services can also be done in conjunction with yearly organic inspections to reduce costs and increase efficiency. Nevertheless, the 'Non-GMO Project' does not currently include a monitoring process.

Currently, there are more than 220[99] brands that bear the 'Non-GMO Project Verified' seal. In total, there are around 1,422 US (and Canadian) participating retailers that have chosen to endorse the Non-GMO Project Verified seal.

A7.4 Canada

Canada currently operates a voluntary GM(O)-free labelling scheme. The voluntary rule applies to the advertising and labelling of pre-packaged, bulk and prepared food. The GM(O)-free labelling scheme that is in use in Canada is the 'Non-GMO Project Verified' Seal described in the US (section A7.3).

The Canadian government has supported the development of a national standard for the voluntary labelling of GM foods. On 15 April 2004, the Government of Canada announced the official adoption, by the Standards Council of Canada, of the *Standard for Voluntary Labelling and Advertising of Foods That Are and Are Not Products of Genetic Engineering* as a National Standard of Canada. As such, food products containing small amounts of genetically modified ingredients can still be labelled 'GM(O)-free' if accidental GM contamination is less than 5%. The labelling guidelines are outlined in Table A7.3.

[98] Non-GMO Project website: 'About the Non-GMO project' (http://www.nongmoproject.org/about/)

[99] Product categories include: baby food and infant formula, beverages, body care products, breads and baked goods, candy, chocolate and sweeteners, cereals and breakfast foods, condiments, oils, dressings and spreads, dairy products, feed and seed, fruit and vegetables, grains, beans and flour, herbs, spices and other ingredients, meat, fish and eggs, mercantile, packaged/frozen meals, pasta, pet products, snack foods and bars, soups and sauces, tofu, tempeh and alternative meat products, vitamins and supplements, wholesale ingredients.

Table A7.3 Canadian National Standard for GM(O)-free labelling

	Claim for a GM(O)-free label can be made	Claim for a GM(O)-free label cannot be made
Single-ingredient food	Single-ingredient food is obtained from sources of which less than 5% are products of genetic engineering	Single-ingredient food is obtained from sources to which a product of genetic engineering has been intentionally added
Ingredient in a multi-ingredient food	Less than 5% of the source of the ingredient is a product of genetic engineering	Ingredient has been obtained from sources to which a product of genetic engineering has been intentionally added

A7.5 Australia

Negative labelling is voluntary in Australia. Nevertheless, the ability for manufacturers to use GM(O)-free labelling statements such as 'not sourced from genetically modified ingredients' or 'free from genetic modification' is subject to the stringent laws imposed by the *Fair Trading Act* which stipulates that 'GM(O)-free' products should contain no mixture or highly-processed ingredients from GM crops. Food suppliers are therefore recommended to take adequate steps to substantiate a 'GM(O)-free' claim with evidence, thus ensuring that it is neither misleading nor deceptive (Wong, 2003).

The Australian Food Standard 1.5.2 sets out conditions for claims that a product is 'GM(O)-free.' Suppliers need to provide GM test results for any relevant food or ingredient believed to be completely 'GM(O)-free'. The GM status of many agricultural commodities can be established via IP systems. These are designed to ensure the absence of GM components in foods or ingredients by separating non-GM from GM components throughout the supply chain. The Standard does not make the use of IP systems mandatory. As long as suppliers can ensure the integrity and purity of their products, 'GM(O)-free' claims are permissible.

Due to this stringency, negative labelling is uncommon amongst Australian producers and retailers. False claims are heavily sanctioned under the *Fair Trading Act* – if convicted, a fine of up to AUS$60,000 for an individual or AUS$200,000 for a company may be levied. The court may also suspend activities completely.

Organic certification organisations, such as the National Association for Sustainable Agriculture, Australia (NASAA), strongly advocate 'zero' tolerance towards genetic modification. Due to the rigid fair trading laws, certifiers like NASAA use the term 'non-GMO' although NASAA's organic products are not labelled as 'non-GMO' or any other similar label in the context of its organic standard. References to genetic engineering on product labels are limited to the production and processing methods to indicate that genetic modification techniques have not been used.

A major retailer, Foodland, has declared itself 'GM(O)-free' in its marketing materials and has indicated willingness to introduce a private 'non-GM' label.

A7.6 India

India has not yet established a mandatory or voluntary negative labelling scheme. The Ministry of Commerce and Industry has entrusted the Export Inspection Council of India (EICI) with the responsibility of issuing 'non-GMO' certificates for exporters of various products.

In 2000, the Indian Government released the National Standards for Organic Products (NSOP) under the 'National Programme for Organic Production' (NPOP). These standards do not allow organic products to be labelled 'GM(O)-free' so as to avoid potentially misleading claims about the end product. References to the avoidance of genetic engineering in the production method are allowed on product labels.

Third-party certification is also used. Sonic Biochem has endorsed the CERT ID Non GMO label.[100] Sonic Biochem is particularly known for its 'soya range' which includes processed foods, health foods, bakery and confectionery products, chocolates, nutraceuticals, pet foods, and cosmetics.

A7.7 China

There are no private or public 'GM(O)-free' labelling schemes in China. Nonetheless, an international organic certification body known as the Organic Crop Improvement Association International (OCIA) certifying body has developed International Certification Standards, which are used by Chinese manufacturers and retailers if they wish to endorse the organic seal. OCIA does not allow organic labelling to include 'GMO-free' or similar wording but labels may reference the fact that production and processing methods have not used genetic modification techniques.

[100] Cert ID Europe provides food safety certification against the British Retail Consortium Global Standard Food Certification (BRC), Non GMO and EU Regulatory Certification and ProTerra certification for environmentally sustainable and socially responsible food and feed production (http:/www.cert-id.eu/About-Us).

Annex 8 Meta-analysis of WTP studies for GM(O)-free products

Table A8.1 Results of a meta-analysis of GM food valuation studies (Lusk et al., 2005)

Author	Country of study	Valuation method	Nature of elicitation question	Type of valuation	Product	Tangible consumer benefit[101]	% Premium for Non-GM(O)
Europe							
Boccaletti & Moro (2000)	Italy	Payment card	Hypothetical	WTP	General	No Yes	1.06 -6.63
Burton et al. (2001)	United Kingdom	Conjoint choice	Hypothetical	WTP/WTA	General	No	169.
Grimsrud et al. (2003)	Norway	Semi-double-bound DC	Hypothetical	WTA	Bread	No	49.87
Moon & Balasubramanian (2003)	United Kingdom	Payment card	Hypothetical	WTP WTA	Breakfast cereal	No	27.97 95.97
Noussair, Robin & Ruffieux (2002)	France	Auction	Real	WTP	Cornflakes	No	29.63
Noussair, Robin & Ruffieux (2004)	France	Auction	Real	WTP	Cookies	No	51.
Tonsor & Schroeder (2003)	United Kingdom Germany France	Conjoint choice	Real	WTP/WTA	Beef steak	No	101.61 29.58 32.36
United States							
Baker & Burnham (2001)	United States	Conjoint ranking	Hypothetical	WTP/WTA	Cornflakes	No	40.
Bugbee & Loureiro (2003)	United States	Double-bound DC	Hypothetical	WTP/WTA	Tomato Beef	Yes	-12.37 -32.60
Buhr et al. (1993)	United States	Auction	Real	WTP	Pork sandwich	Yes	-15.44
Chen & Chern	United States	Dichotomous	Hypothetical	WTP	Vegetable oil,	No	6.50

[101] For example, increased nutrition or shelf life.

Author	Country of study	Valuation method	Nature of elicitation question	Type of valuation	Product	Tangible consumer benefit[101]	% Premium for Non-GM(O)
(2001)		choice (DC)			Cornflakes, salmon		14.50 21.50
Chern et al. (2003)	United States	Conjoint choice	Hypothetical	WTP/ WTA	Salmon (feed) Salmon (meat) Salmon (feed) Salmon (meat)	No	41.00 53.00 54.00 67.00
Huffman et al. (2003)	United States	Auction	Real	WTP	Vegetables Corn chips Potato	No	15.39 16.13 16.67
Loureiro & Hine (2002)	United States	Payment card	Hypothetical	WTP	Potato	No	6.
Lusk (2003)	United States	Double-bound DC	Hypothetical	WTP	Golden rice	Yes	-19.54
Lusk et al. (2001)	United States	Auction	Real	WTP	Corn chips	No	13.00
Lusk et al. (2002)	United States	Conjoint choice	Hypothetical	WTP/WTA	Corn chips	No Yes	11.33 -0.33
Rousu at al. (2003)	United States	Auction	Real	WTP	Vegetables Corn chips Potato	No	5.26 10.29 12.00
VanWechel et al. (2003)	United States	Auction	Real	WTP	Potato chips Cookie Muffin	No	8.60 6.70 11.00
Mixed							
Chern at al. (2003)	United States Norway Japan Taiwan	Conjoint choice	Hypothetical	WTP/WTA	General-Animal	No	56.00 62.00 36.50 19.00
Lusk at al. (2004a)	United States (TX) United States (CA) United States (FL) United Kingdom France	Auction	Real	WTA	Cookie	No	40.00 80.00 20.00 160.00 784.00

Author	Country of study	Valuation method	Nature of elicitation question	Type of valuation	Product	Tangible consumer benefit[101]	% Premium for Non-GM(O)
Lusk, Roosen & Fox (2003)	United States United Kingdom Germany France	Conjoint choice	Hypothetical	WTP/WTA	Beef steak	No	39.94 74.24 90.24 109.65
Other							
James & Burton (2003)	Australia	Conjoint choice	Hypothetical	WTP/WTA	General-Plant	No	18.20 21.05
Li at al. (2003)	China	Double-bound DC	Hypothetical	WTP	Rice	Yes	-38.00 -16.30
McCluskey at al. (2003)	Japan	Semi-double-bound DC	Hypothetical	WTA	Noodles	No	60.34
West et al. (2002)	Canada	Conjoint choice	Hypothetical	WTP/WTA	Tomato, potato chips, chicken	Yes	-67.00 -63.00 -24.00

Adapted from Lusk et al., 2004

Annex 9 References

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